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LITHOGRAPHIC ABSTRACTS

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LITHOGRAPHIC ABSTRACTS - JANUARY, 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

PRE-SEPARATED ART TECHNIQUES - AN APPROACH TO LOW-COST COLOR. Herbert P. Paschel. Modern Lithography 24, No. 9, Sept. 1956, pp. 49-53, 167, 169, 171 (8 pages). The Bourges method of preparing pre-separated color art work is described.

SCREENED VELOX PASTE-UPS. Charles J. Felten. Printing Magazine 80, No. 9, September 1956, pp. 68-69 (2 pages). The use of screened Velox prints in preparing layouts is described. Velox prints can be cut, opaqued, positioned on the layout, etc., so that the final result is easily visualized. The final layout can then be photographed as a line shot.

WHITHER COLOR CORRECTION? Frank Preucil. The Graphic Arts Monthly 27, No. 9, September 1955, pp. 66, 68, 70, 72 (4 pages). The incomplete success of some present systems is attributed to lack of understanding of the total problem. The Neugebauer equations, Tobias system, multiple projected masking and fluorescent and prismatic lights are mentioned. The trend of thinking is to more completely understand all color errors involved.

PROCESS WORK FOR BEGINNERS. Charles Roeder. The Graphic Arts Monthly 28, No. 9, September 1956, pp. 88, 92, 94, 96 (4 pages). Part I of this three-article series describes the equipment and materials needed to make color separation negatives from reflection copy. The author describes how the copy is prepared for shooting and the approximate exposure and development conditions.

PROCESS WORK FOR BEGINNERS - Part 2. Charles Roeder. The Graphic Arts Monthly 28, No. 10, Oct. 1956, pp. 66, 68, 70, 72 (4 pages). Part 2 of a series of 3 articles on process camera work describes the procedure and materials used to mask color separation negatives. The 3-stop method of making halftone positives is described.

MECHANICAL COLOR REGISTRATION. H. W. Barnhart. The National Lithographer 63, No. 11, November, 1956, pp. 38-39 (2 pages). A method of obtaining register with a mechanical system of pins and punched film is described. The punched film is placed over pins set in the camera back. The processed films are then placed on another bar with pins for assemblying and stripping.

ESTIMATING COLOR. Harold Mobus. The National Lithographer 63, No. 3, March 1956, pp. 48-49 (2 pages). The reproduction characteristics of ten types of copy for lithographic color reproduction are described.

MASKING - WHY DOESN'T IT WORK? John Pince. The National Lithographer 63, No. 3, March 1956, pp. 32, 33, 34 (3 pages). Many variables in exposure, development, halftone screening, platemaking, and presswork are discussed in relation to their contribution to color unbalance and quality loss. Masking is considered as the means of adjusting a job to the inks and paper to be used and failure to be expected when this information is unknown or ignored.

A PRACTICAL APPROACH TO THE LITHO CAMERA - Part 3 - SPECIAL HALFTONE PROCESSES. Marvin Haenze. The Graphic Arts Monthly 28, No. 5, May 1956, pp. 66, 68, 86, 88, 90, 92 (6 pages). The Fluorographic and Kemart methods for highlighting and dropping out white areas in halftones are described. Examples of exposure values and development times are given. The author describes how halftone paper prints are made and used for layouts.

CONTACT SCREENS FOR HALFTONE - Part I. Frank H. Smith. Modern Lithographer and Offset Printer 10, October, 1956, pp. 17-18 (2 pages). A short treatment of the history of contact screens is given. The method of making contact screens is described. Some of the advantages of using contact screens are discussed.

THE FUTURE OF NON-SILVER PHOTOGRAPHIC SYSTEMS. James Milton. The British Journal of Photography 103, No. 5023, Aug. 24, 1956, pp. 418, 421 (2 pages). A brief survey of the print-out type process and the limitations.

AUTOPOSITIVE FILM: AID FOR MAKING COMPOSITE NEGATIVES. C. Weston Simonds and Edward H. Groet. Printing Equipment Engineer 87, No. 1, October, 1956, pp. 57, 58, 82, 83 (4 pages). Autopositive film, when exposed to white light, will produce a latent image which can be erased by an exposure of yellow light. This effect is reversible for several cycles. Examples are given to show how this material can be used to assemble complicated subjects from separate negatives or positives.

PLANOGRAPHIC PRINTING PROCESSES

KODAK LITHOFOIL SHEET. Anon. British Journal of Photography 103, No. 5033, Nov. 2, 1956, p. 557 (1 page). Lithofoil is a thin aluminum sheeting with one side satinized and coated with a very stable light-sensitive layer. It can be stored for considerable periods without danger of dark reaction. Exposure is to a high pressure mercury arc in the usual vacuum frame. Plate is developed by swabbing with developer, then with stabilizer, inked and gummed with a regular lithographic gum solution.

DEVELOPMENTS IN LITHOGRAPHIC PLATEMAKING. Bernard Sears. Modern Lithography 24, No. 10, October, 1956, pp. 62, 63, 64, 159 and 161 (5 pages). Article lists and briefly discusses the major improvements in lithographic platemaking materials and methods since 1922. Improvements in film, arc lamps, cold cathode lamps and camera composition methods are mentioned as well as the use of Photolacs, double printing methods and stripping wet films to blue keys. Various dot etching and intensifying techniques and materials along with staging varnishes that adhere to wet film are included. Factors influencing the extended life of plates such as deep-etching polymetallic plates and vinyl lacquers are also discussed.

LTF SUGGESTS METHOD FOR GRAINING PLATES WITH BRUSH. J. L. Heal. The Inland Printer 138, No. 1, October, 1956, pp. 58-59 (2 pages). Zinc and aluminum plates are roughened by using a brush, abrasive, a wetting agent, and water. The article describes procedure for graining, platemaking and running on the press. Both surface and deep-etch procedures are given.

*SENSITISED PRINTING PLATES. British Patent 756,277. Printing World 159, No. 20, November 14, 1956, p. 523. Polychrome Corporation of New York invent a photographic printing plate, e.g. for use in offset work, using a diazo compound on its surface. The plate has a wet strength paper base covered by a water-proof coating, and then a starch surface on which the photo-sensitive diazo rests. Patent 695,521 is discussed regarding lithographic printing plates.

*PRINTING PLATE PRODUCTION. British Patent 756,847. D. H. Coles. Printing World 159, No. 20, November 14, 1956, p. 523. This improves on patents 756,920 and 730,639 for the making of photomechanical printing plates to give easy copying by offset for short run work. Duplex paper is used, e.g. in a typewriter, without lateral inversion, and then subject to a series of steps, separating the tissue face from the backing and directing light through it on to a sensitive plate.

PAPER AND INK

HANDLING PAPER IN YOUR PLANT. Dr. Robert F. Reed. Modern Lithography 24, No. 10, October, 1956, p. 92 (1 page). Printability of paper is defined. Defects in paper can affect print quality, but the same print quality can't be expected on papers of different brightness, opacity or smoothness. The papermaker is responsible for packaging paper in a flat condition. The lithographer's responsibility is to keep the paper flat after it reaches his shop. The precautions to be taken are discussed briefly.

FOUNTAIN DOPE - KNOW WHY YOU'RE TROUBLED BY PICKING OF COATED PAPERS ON MULTI-COLOR PRESSES? HERE ARE THE CAUSES AND FIVE WAYS OF OVERCOMING THE PROBLEM. John D. Payne. New England Printer and Lithographer 19, No. 9, October, 1956, pp. 35-36 (2 pages). The article describes a number of observations made during offset printing in which picking and piling were due to fountain solution softening the paper surface on the paper coating to the extent that subsequent inks would readily remove the softened material from the paper.

DIMENSIONAL STABILITY OF BOARD. T. Linsey Crossley. Pulp and Paper Magazine of Canada 57, No. 11, October 1956, pp. 157-158 (2 pages). Incidental to an industrial problem, it was necessary to determine limits of expansion and contraction of certain boards. As such information did not appear to have been published in available references, a method of determining these factors by linear measurement was devised. The method is described and some representative results given.

CONTINUOUS MOISTURE MEASUREMENT WITH GENERAL ELECTRIC MOISTURE MONITOR. J. M. McClung and W. Mikelson. Pulp and Paper Magazine of Canada 57, No. 11, October 1956, pp. 155-6 (2 pages). A General Electric Moisture Monitor which is in use in the Champion International Paper Mill is described. This instrument, which operates upon the principle of the change if dielectric constant of paper as the moisture content is varied, consists of two parts. A sensing head contacts the moving web, while power is supplied to the head by an oscillator in a cabinet. An indicator, also in the cabinet, shows the moisture content by its readings according to an arbitrary calibration, which is approximately one-sixth of full scale for one per cent moisture content of the sample. Repeatability of readings is stated to be generally plus or minus 0.1%, for any given weight of paper.

A THIN-FILM PSYCHROMETER FOR MEASURING RELATIVE HUMIDITY IN SMALL SPACES. W. A. Wink and J. A. Van Den Akker. TAPPI 39, No. 9, September 1956, pp. 647-649 (3 pages). The new "thin-film psychrometer" has been developed for application of the psychrometric method to the determination of relative humidity in instruments, small cabinets, and spaces of such smallness that the use of an ordinary wet-bulb hygrometer appreciably disturbs the humidity being measured by undue evaporation of water from the wet bulb into the space under test. In the use of the new psychrometer this disturbance is minimized by (1) replacing the muslin sock on the wet-bulb thermometer with a thin film of an aqueous kaolin clay slurry of optimum consistency, and (2) choosing a thermometer of adequate

sensitivity and accuracy but having a small bulb. The use of the thin-film psychrometer is illustrated in the determination of relative humidity in a multiple-specimen Neenah expansimeter. In view of low cost and freedom from need of periodic calibration, the new method is preferred in this application to an electric hygrometer. As in the use of an ordinary psychrometer, the thin-film psychrometer must be employed where the velocity of the air is at least 10 ft. per sec. Where the space is sufficiently large to permit the use of a sling psychrometer, there is no advantage in the use of the new psychrometer and, in fact, the new principle cannot be employed in a sling psychrometer.

LITHOGRAPHY - GENERAL

NEW INK STANDARD AIDS COLOR LITHO. Anon. Modern Lithographer and Offset Printer LII, No. 3, March 1956, pp. 37-38 (2 pages). The new British Standard four-color offset inks B.S. 2650 were selected considering the best hues possible with good working properties, light fastness, insolubility in water, and acceptable cost. Advantages of use will be of great help to retouchers and consistent masking. Also discussed is the reproduction of grey, black, and undercolor removal.

THE BEST RETOUCHING DEPARTMENT IN THE WORLD. Anon. Modern Lithographer and Offset Printer LII, No. 10, October 1956, pp. 19, 20, 22 (3 pages). The best features of American, British and Continental design have been combined in the new retouching department of Brown, Knight and Truscott at Tonbridge. Roofed in cubicles, desks, lighting arrangements and room layout are illustrated. Retoucher's chairs to minimise fatigue are thought to increase efficiency.

QUALITY CONTROL. Stanley R. Rinehart. Modern Lithography 24, No. 11, November 1956, pp. 43, 44, 45, 151 (4 pages). The author discusses the basic concepts of quality control and their applications to a program of in-process control of color in his plant. The results after a year and a half show that the program has been successful although further development of procedures and instruments for color control is planned.

THE QUANTITATIVE DETERMINATION OF PAPER DUST (In German). Prof. Dr. J. Albrecht and W. Ebert. Fogra Mitteilungen 8, March 1956, pp. 1-4 (4 pages). The concentration of dust in the air of a printing plant was found to be 3,000 particles per liter at the start of a normal day. At the end of the day the concentration of dust was 24,000 particles per liter. Of this dust over 50% was cellulose fiber, 15% was paper filler, the rest was mainly anti-offset dust. Three early methods for determining dust in paper are reviewed: (1) apparatus by Riesenfield and Hamburger in Papierfabrikant 28 (1930) p. 119 consisting of a rotating cylinder on which paper to be tested is mounted; a knife mounted on a pivoting balance arm with an adjustable weight rubs against the paper; (2) Apparatus by Samuelson and Stephensen in Papir-J. 21 (1933) p. 97 in which a strip of paper 70 x 200 mm. is pulled under 0.5 Kg. tension over edge of a plate 1.5 mm. thick (radius of edge .75 mm) three times. The number of fibers raised are meant to indicate dusting potential; (3) Apparatus by G. Blokhuis, IGT-Niews 5 (1953) p. 78 in which a continuous belt of paper is run at 3.6 m. per sec. over two rotating pulleys and 4 stationary spindles. Tension can be regulated. Dust is collected on two plates and judged visually. Two methods used at the FOGRA-Institute are also described: (1) The press cylinder brush is covered with black velvet to collect dust from passing paper; (2) A vacuum nozzle, black filter cloth combination is used to (a) sample a running web of paper, (b) sample a sheet of paper by scanning over its entire surface area. Density of dust on filter may be measured photometrically and dust may be identified with microscope. Results of work with two nozzle designs are also described.

GRAPHIC ARTS - GENERAL

ROTOGRAVURE IRON CHLORIDE SOLUTION. Donald Alnutt. Gravure, 2, No. 8, August, 1956, pp. 21, 22, 52, 53, (4 pages). This paper discusses the quality of iron chloride solutions and some analytical findings relative to their use

in gravure. The effects of surface tension, viscosity, and amount of free acid are described.

THE USE OF SYNTHETIC FIBERS IN PAPER. John R. Emery, J. Donald Howell and Seymour Sands. TAPPI 39, No. 11, November 1956, pp. 781-786 (6 pages). "Dacron" polyester fiber, nylon and "Orlon" acrylic fiber offer a wide range of chemical and physical properties that can be utilized in products made on conventional papermaking equipment. The unique properties of the papers prepared from these fibers should permit their use in many areas in which paper is not normally used. The use of synthetic fibers in papermaking has graduated from the laboratory to the pilot plant phase. This report discusses both the laboratory and pilot plant phases of this investigation. The pilot plant experience described shows that the manufacture of synthetic fiber papers is commercially practical. The range of properties obtainable in papers from 100% "Dacron" and nylon, with and without added wood pulp, are discussed. In pilot plant studies, emphasis was placed on a study of the variables important to a papermaker. These include fiber dispersion and stock preparation techniques, bonding methods, the effects of wood pulp on wet web strength, and drying and calendering. Suggested end uses for these papers are listed.

PRINTERS' TROUBLE MAY LEAD TO ALCOHOLISM CURE. Anon. Science News Letter 70, No. 14, Oct. 6, 1956, p. 217. Because printers working on color presses developed a violent reaction after drinking as little as six ounces of beer, medical science may have "a new cure for alcoholism." The new "cure" would be like the famous Antabuse cure and would work in the same way and for the same reason. The chemical that would be used instead of Antabuse would be N-buytraldoxime. Persons who get this chemical into their bodies have a marked reaction, consisting of red, swollen face, red ears, stuffy nose and increased skin temperature on the face, after drinking alcoholic beverages. The reaction starts within 10 or 15 minutes after a half-ounce of whisky and increases if more whisky is taken. Discovery of the

reaction and the chemical responsible for it is announced by Drs. Wm. Lewis and Louis Schwartz of Washington D. C., in Medical Annals (Sept.) official journal of the Medical Society of the District of Columbia. Their medical detective work in turning up the new potential "cure" for alcoholism started when all the men on the second floor of a large printing company complained to the management about the unpleasant reactions they developed if they drank alcoholic beverages. Besides the blotched, red faces, the men were drowsy, short of breath and had palpitations. Because of these unpleasant symptoms, most of the men on the second floor stopped drinking. The second floor was the pressroom, containing black and color presses. Careful investigation finally pinned the trouble to an anti-skinning compound in the inks, especially in the yellow ink. Men at the ink manufacturing plant, it turned out, also had similar symptoms especially when mixing yellow ink.

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LITHOGRAPHIC ABSTRACTS - FEBRUARY, 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

PROGRESS IN COLOR SEPARATION. Robert Brumhouse. Graphic Arts Monthly 28, No. 9, September, 1956, pp. 76, 78, 80, 82, 84, 86 (6 pages). A general survey of the various photomechanical and electronic methods of masking.

THEORETICAL ASPECTS OF COLOUR HALFTONE REPRODUCTION. H. M. Cartwright. Process Engravers' Monthly 63, No. 746, February, 1956, pp. 54-55 (2 pages). J. M. Adams' lecture to the Physical Society is reviewed with reference to research at PATRA. Photomicrograph section of printed coated paper was studied as well as ink transfer by radioactive tracers.

MICRODENSITOMETER FOR PHOTOGRAPHIC RESEARCH. Joseph H. Altman and Keith F. Stultz. The Review of Scientific Instruments 27, No. 12, December, 1956, pp. 1033-1036 (4 pages). A recording microdensitometer is described that has a resolving power of 800 lines/mm when the scanning aperture is 1 μ wide and 200 μ long. The response is linear in density to 3.0 for the same aperture. By narrowing the aperture to 0.1 μ, the resolving power can be increased to 1800 lines/mm. The record is made either on chart paper with rectangular coordinates, on punched cards, or on both.

THEORY AND PRACTICE OF: HALFTONE PHOTOGRAPHY. John Pince. The National Lithographer 63, No. 10, October, 1956, pp. 26, 28, 30 (3 pages). The method of designating F stops on process lenses is described. Methods of determining the halftone screen distance are given.

MAKING EVEN-TINT NEGATIVES WITH CONTACT SCREEN. The Inland Printer 138, No. 2, November, 1956, p. 55 (1 page). LITHOGRAPHIC TECHNICAL FOUNDATION - Research Progress #36, July, 1956. A method for making even tint negatives developed at LTF is discussed. The camera vacuum back is used instead of a contact printing frame to avoid Newton rings, dust specks, and poor contact. To avoid unevenness, the use of a two step method using a softer developer for the first negative followed by a contact print made from this negative is described.

PLANOGRAPHIC PRINTING PROCESSES

FINISHES FOR THE BOTTLE CROWN INDUSTRY. Part I: Types of Finishes and Their Application. Part II: Application Controls and Testing Procedures. Louis F. Rogers. Organic Finishing 17, No. 11, November, 1956, pp. 12-18 (7 pages); No. 12, December, 1956, pp. 5-9 (5 pages). The application and finishing of crowns by Continental Can Co. points out information of value to lithographers. Some of the problems are excessive dusting and scratching which can be minimized by correcting the size coatings, inside enamels, printing inks, finishing varnishes and waxes and lubricants. This article gives the effects of each of these steps on the manufacturing and final uses of the crowns.

TECHNICAL FACTS ABOUT SHORT-RUN 3-COLOR PRINTING. Bulletin for the Graphic Arts #7, 1956 (3 pages). The 3-Color Printing Process can be characterized by 4 main points: (1) Standardization; (2) Mechanical Register; (3) No handwork; (4) Specially selected inks. The procedure, equipment and materials used in the process are described. Examples of 3 color printing are included.

3-COLOR PROCESS: REVOLUTION IN COLOR PRINTING. Joe H. Williams. Printing Monthly 7, No. 11, February, 1956, pp. 4, 5, 6 (3 pages). Short Run Color Corporation's experience with 3-color reproduction is described. Copy quality, color bars, dot sharpness and hand work are discussed.

PAPER AND INK

*FORMATION OF LABORATORY BRIGHTNESS SHEETS FROM FULLY BLEACHED PULPS. Analysis Committee - Central Laboratory of the Cellulose Industry. Svensk Papperstidn. 59, No. 1: 12-13 (Jan. 15, 1956) (In English) cf. B.IPC. 25: 389; Bulletin of the Institute of Paper Chemistry 26, No. 7, March, 1956, p. 564-565. The text of the tentative Swedish Standard CCA 26: 55 for the formation of brightness sheets from pulps with brightness values approximately

above 80% G.E. is presented, including disintegration, sheet formation on a plastic sheet machine, couching between hard filter papers, pressing in a hydraulic disk press, drying on a cylinder drier, and pressing in a disk press, with the samples protected between the filter papers throughout all procedures following couching. The brightness of each test sheet (at least two, preferably four sheets of the same pulp are used) is measured in several places on the top side, avoiding the thin edges of the sheet, and the average of the readings is reported as the brightness of the pulp. The standard deviation of sheets from one pulp should not exceed ± 0.5 units. 1 diagram and 1 reference.

NEW EXTENDER CLAYS FOR LITHO INKS. Carolyn E. Moore. Modern Lithography 24, No. 10, October, 1956, pp. 88, 89, 91, 92 (4 pages). This article discusses the addition of clays to printing inks to improve the quality of printing. A project to improve the surface characteristics of kaolin clays for use in lithographic inks has been undertaken by NPIRI under the sponsorship of Minerals and Chemicals Corporation of America. A method of rendering the clays hydrophobic and testing these clays in practical ink systems was studied. Litho-inks using polar vehicles show that hydrophobic clays wet more easily, disperse more quickly and resist emulsification and breakdown by water. Occurrence of tinting gradually decreased with increased hydrophobicity of the extender pigment. Conclusions drawn are: (1) With hydrophobic clays ink is more uniform in composition and therefore performance is more predictable; (2) Inks formulated with coated clays change less in consistency and performance due to changes in humidity or the presence of water; (3) Inks containing hydrophobic clays showed marked resistance to piling, emulsification, and water breakdown.

INK TELLS THE DIFFERENCE. Dr. Maurice Adler. Pacific Printer Publisher & Lithographer 95, No. 5, Nov., 1956, pp. 13, 14, 16 (3 pages). This is a very general article about printing inks. Included is a description of early inks and recent new inks and future work to be done.

NEW APPLICATIONS OF SYNTHETICS FOR THE METAL DECORATOR. Bruce W. Hubbard. The National Lithographer 63, No. 10, October, 1956, pp. 43, 45, 46 (3 pages). A brief history of the natural rubbers and synthetic rubbers used for rollers and blankets by the metal decorator is outlined. Properties of natural latex, thiokol, neoprene, nitrile rubber, leather, vulcanized oil, and plast-o-damp are described under attack by litho varnishes, solvents and other materials peculiar to the lithographic process. Special emphasis is placed on the properties and uses of plast-o-damp, a new dampener covering.

CAUSES OF PAPER PICK—HOW TO MEASURE IT. Carolyn E. Moore. The Inland Printer 138, No. 2, November, 1956, pp. 52, 53 and 75 (3 pages). This article is a review of some of the types of picking that occur while printing and why picking happens. The experience gained by NPIRI while evaluating four presently used commercial pick testers is discussed and the factors considered important to picking by NPIRI are listed.

LITHOGRAPHY - GENERAL

INSIDE STORY OF LITHO RESEARCH. H. H. Slawson. Modern Lithography 24, No. 10, October, 1956, pp. 67, 68, 70 (3 pages). A three page picture article showing the personnel, equipment, facilities, and activities at the LTF Laboratory. Photos from LTF's AV on the lab.

WILL IT BE STRIPPING OR PHOTOCOMPOSING? Bernard R. Halpern. Printing Equipment Engineer 86, No. 11, August, 1956, pp. 66, 67, 103, 104 (4 pages). The advantages and disadvantages of stripping vs. photocomposing are carefully analyzed. Such factors as initial investment, time, accuracy, operating costs, etc., are compared for each method.

OFFSET BLANKETS: MANUFACTURE, CARE AND USE. R. R. Lewis. The Graphic Arts Monthly 28, No. 11, November, 1956, pp. 66, 68, 70, 72 (4 pages). The problems of the past when natural rubbers were used are reviewed and the improved properties that blankets made of synthetic Buna N rubbers now have are noted. The manufacture

of blankets is described briefly and the care that blankets in use should have is covered.

LITHO USERS OF NEW PVP. Graphic Arts Monthly 28, No. 11, November, 1956, pp. 130, 132 (2 pages). A short history of PVP (Polyvinylpyrrolidone) is given and the areas where it has been used. In the printing industry they list its uses in: (1) colloids for light sensitive coatings; (2) post etch formulations; (3) fountain solutions; (4) lithographic inks.

PHOTOSENSITIVE ORGANIC MATERIALS. K. M. Hornsby. Brit. J. Photography, Vol. 103, No. 5013, 15 June, 1956, pp. 287-288; Printing Abstracts 11, No. 8, August, 1956, p. 491. Patents relating to diazo sensitisers are reviewed, including sensitisers for photo-litho plates.

*ALBUMEN SUBSTITUTE AND SYNTHETIC COATING SOLUTION FOR PHOTO-LITHO PLATES. Anon. Indian Pr. Pap., Vol. 21, No. 4, April, 1956, pp. 28-9; Printing Abstracts 11, No. 8, August, 1956, p. 490. Formulae and brief notes on handling for casein, soya bean, dextrin and Baracoat coatings and comments on simple pH control are given.

GRAPHIC ARTS - GENERAL

A NEW COMPARATOR MICROSCOPE. Francis N. Goode. Process 63, No. 748, April, 1956, pp. 126-129 (4 pages). A comparison microscope for examining two samples located twelve inches apart is shown. The controlled source for illumination is the principal novel feature. An interesting discussion of operation and application is given.

THE COX AND HALLAM COLOUR CHARTS. F. W. Mackenzie. Process 63, No. 748, April, 1956, pp. 129-130 (2 pages). A color chart for photo-engravers is described. 1214 color areas are produced from the British Standard 1480 Letterpress Inks. The original charts were designed for teaching students color etching.

VINYL PRINTING. Gabriel F. Goldstein. Interchemical Review 15, No. 2, Summer, 1956, pp. 40-46 (7 pages). The author describes how new methods of decorating vinyl webs produce highly styled fabrics with the beauty of woven textiles and the durability of vinyl.

ELECTRONIC HT AGE IS HERE. Printing Magazine 80, No. 11, November, 1956, pp. 62, 63, and 94 (3 pages). The dominance of graphic arts is threatened by other means of visual communication and electronics can assist in reversing the trend away from letterpress and photoengraving. Already there are more installations of electronic engravers in the U. S. and Canada than there are photo-chemical engraving plants. The nine electronic color scanners compared are: Time-Life, RCA, NEA-Acme, Fairchild, R. Hell, Crosfield, Hunter-Penrose, Miehle, and Belin.

*PHOTO-SET TYPE FOR PHOTOGRAVURE PRINTING. British Patent 707,662. R. A. Higonnet. The British Journal of Photography 103, No. 4999, March 9, 1956, p. 120. Improved text type by rotogravure is to be obtained by special Photon characters including screen lines placed irregularly with regard to each letter.

COMING OF AGE IN THE G.A.? Judson A. V. Hyatt. Pacific Printer Publisher & Lithographer XCV, No. 5, Nov., 1956, pp. 11, 12, 19, 20, 22, 24 (6 pages). Fifteen current applications of electronics in the graphic arts are listed. Cutting costs by help of electronics is looked to to reverse the trend away from letterpress and photoengraving as a communication media. The research of ten companies is reviewed in the field of scanners for picture reproduction. The Photo-Screener, Scan-A-Sizer and a color computer will be combined by Fairchild for 3 color R.O.P.

MARCH 1957
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LITHOGRAPHIC ABSTRACTS

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LITHOGRAPHIC ABSTRACTS - MARCH, 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

*LIGHT-SENSITIVE RESIN COMPOSITION FOR PHOTOGRAPHIC USE. U. S. Patent 2,712,996 (Issued July 12, 1955). Stanley B. Elliott (To Ferro Corp.) Chemical Abstracts 50, No. 9, May 10, 1956, col. 6237. A photosensitive resin compn. is made which is capable of producing immediate visible images upon exposure to actinic light and which can be developed and fixed by heat and light alone. Thus, a mixt. of 50 g. vinyl chloride-vinylidene copolymer resin, 25 g. solvent, 12 g. dioctyl phthalate, 3 g. dibutyltin dilaurate, and 1 g. Ag naphthenate is poured onto a plate, and a 4 mil film drawn down. The film is cured at 350°F. for 1 min., so that it will not be sticky. The film is masked with a negative and exposed for 10 min. to actinic light. An immediate image forms and is fixed by holding at 350°F. for 15 min. The resulting image is allowed to weather for 5 days. At the end of this time, there was no change in the intensity of the image to the ground.

CALCULATION OF CANDLEPOWER AND COLOR TEMPERATURE OF TUNGSTEN LAMPS. A. J. Sant and A. J. Leta. Journal of the SMPTE 65, No. 12, December, 1956, pp. 645, 646, 647 (3 pages). Over the range of greatest interest in photography, the candlepower and color temperature of tungsten lamps may be calculated with satisfactory precision by the use of simple exponential equations. Detailed examples are given which illustrate the application of these equations. The constants and exponents in these equations have been determined for several commonly used lamps. These have been arranged in a set of tables designed for convenient reference.

*MULTI-COLOR-SEPARATION PRINTING PLATES. U. S. Patent 2,768,577 (Applied for March 31, 1953). John A. Boyajean (Assigned to Fairchild Camera and Instrument Corp.). Official Gazette 711, No. 5, October 30, 1956, p. 979.

A correlated set of three or more screen-pattern color-separation printing plates each comprising a homogeneous pattern of elementary deformations, the centers of adjacent deformations of each of said plates lying at the apices of a series of parallelograms with the sides of said parallelograms of different ones of a plurality of said plates forming different corresponding angles therebetween, thereby substantially to reduce moire patterns in a resulting multi-color reproduction.

*PHOTOCOMPOSING APPARATUS AND JUSTIFYING APPARATUS. U. S. Patent 2,772,613 (Application March 18, 1955). Woodbury Williams. Official Gazette 713, No. 1, December 4, 1956, p. 57. A photocomposing apparatus comprising a frame, a carriage slidably mounted on said frame, a photographic film magazine on said carriage, means for intermittently feeding film from said magazine, a light-proof housing enclosing film fed from said magazine, said housing having an aperture to admit light rays to a limited area of said film to expose the same, a shutter for momentarily opening and closing said aperture, a light source providing a light beam focused on said aperture, a plurality of type bars pivotally mounted on said frame.

*METHOD AND APPARATUS FOR PHOTOGRAPHIC COMPOSING. U. S. Patent 2,780,151 (Application Feb. 7, 1952). Bernard Borisof (Assignor of 1/2 to Allen Friedman). Official Gazette 715, No. 1, February 5, 1957, p. 64. A photographic composing machine comprising a light source, means for feeding a film strip and a print strip in a forward direction past said light source in superposed relationship, means for urging said strips into pressure engagement with each other so as to maintain the relative superposed positions of said strips during said feeding operation, means for releasing said pressure engagement so that said film strip may be moved independently of said print strip, and means responsive to a reversal of the feeding movement of said strips for extinguishing said light source, said feeding means including a film reel, and said light extinguishing

means including a toggle lever having a portion engaging said film reel and cooperating therewith to provide a toggle action when said reel is rotated.

*AGITATING DEVICE FOR TREATING LIQUID USED IN PHOTOGRAPHIC DEVELOPMENT PROCESS. U. S. Patent 2,776,611 (Application November 18, 1954). Victor J. Accrocco. Official Gazette 714, No. 2, January 8, 1957, p. 219. A portable, unitary agitating device for insertion in a rectangular tank containing a treating liquid for photographic sheets that comprise a frame member, said member comprising first and second rectangular sub-frames, said first sub-frame being adapted to overlie at its opposite ends a pair of opposite ends of said tank and to be supported thereby, a motor, means to mount said motor to said first sub-frame, photographic sheet hanger supports mounted in parallel space relation across the short width of said first sub-frame, said supports having aligned hanger receiving grooves therein to receive said hangers in a position at approximately right angles to said supports, said second rectangular sub-frame being carried by said first sub-frame and having two elongated legs adapted to loosely fit over the long legs of said first sub-frame member, and to freely move over said long legs thereof, a plurality of agitating vanes, means mounting said vanes to said second sub-frame member in vertical parallel space relation to each other, said vanes being disposed in planes perpendicular to the planes of said photographic sheets and being spaced adjacent thereto, means operatively connecting said motor and said second sub-frame to reciprocate said second frame back and forth over said first sub-frame and to thereby reciprocate said vanes back and forth in said tank in planes substantially parallel to said sheets, whereby said frame member, said motor, said motor mounting means, said hanger supports, said vanes, said vane mounting means and said reciprocating means form a single, integral, portable unit that is inserted in and removed from said tank as a unit.

*METHOD AND MATERIAL FOR MAKING OVERLAY MASKS. U. S. Patent 2,770,534 (Application May 10, 1953). Walter S. Marx, Jr. (Assigned to Printing Arts Research Laboratories, Inc.). Official Gazette 712, No. 2, November 13, 1956, p. 362. The method of making an overlay mask on a base sheet of transparent or translucent material and of a type adapted for use in the production of relief halftone and lithographic plates from art copy having tone and other areas, which method comprises the steps of applying to the base sheet a surface exposed layer of a color-changeable substance, distinguishing between the tone and other areas of the art copy by the inclusion in one of said areas of a normally inert substance which is stationary at normal room temperature and so sensitive to mild heat at an elevated temperature that a gaseous reagent is generated from said substance, which reagent is chemically reactive in its gaseous form with said color-changeable substance to effect a change of the color thereof, placing the base sheet upon the art copy with the color-changeable substance in contact with said areas thereof, and heating the contacting surfaces from its normal room temperature to a reagent-generating temperature for said inert substance for a limited period of time to effect the color change of the color-changeable substance.

PLANOGRAPHIC PRINTING PROCESSES

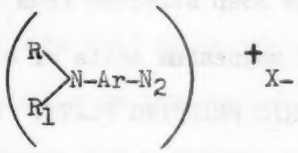
THE ANATOMY OF VINYL PLATE LACQUERS. Grant C. Beutner. The Graphic Arts Monthly 28, No. 11, November, 1956, pp. 84, 86, 88, 90 (4 pages). Author lists and discusses what he thinks are the more basic considerations as to what makes a good lacquer. These are: chemical resistance, adhesion (lacquer-plate), abrasion-resistance, and ink-receptivity. Author also discusses what vinyl lacquers contain (5 "building units"), how these "building units" affect the performance of the lacquer, and what an ideal vinyl lacquer should be.

*LIGHT-DETACHED RESISTS OR RELIEFS FOR PRINTING PLATES. U. S. Patent 2,772,160 (Application March 21, 1952). Martin Hepher (Assigned to Eastman Kodak Company, Inc.). Official Gazette 712, No. 4, November 27, 1956. p. 783. A photosensitive sheet comprising a support and a layer on the support made up of gelatin containing sufficient acid to have a pH below 2.5, between 0.1 percent and 2 percent chrome alum and a diazo derivative of the compounds selected from the group consisting of p-Phenylenediamines, and 4,4'-diamino diphenylmethanes.

*TREATING SOLUTION FOR PHOTOLITHOGRAPHIC PRINTING PLATES. U. S. Patent 2,773,779 (Application 1-25-54). Frederic E. Brinnick and Charles H. Van Dusen, Jr. (Assigned to Addressograph-Multigraph Corp.). Official Gazette 713, No. 2, Dec. 11, 1956, p. 359. A liquid desensitizer solution for planographic printing plates composed of oleic acid having dissolved therein from 0.1 percent to 5 percent of a water-insoluble soap selected from the group consisting of aluminum, zinc, calcium and magnesium salts of oleic, stearic and plamitic acids.

*COATED PAPER PLANOGRAPHIC PRINTING PLATE. U. S. Patent 2,778,301 (Application May 22, 1953). Frederic E. Brinnick and Arthur Reilly and Towers Doggett (Assigned to S. D. Warren Co., Inc.). Official Gazette 714, No. 4, January 22, 1957, p. 651. Coated paper product suitable for use in preparing a planographic printing plate which comprises a paper-base, on one side of said paper base an oleophilic barrier-coat substantially impervious to water, over said barrier coat a first layer of mineral-coating free from hydrous mineral matter and consisting essentially of insolubilized casein adhesive and precipitated mineral pigment selected from the group consisting of precipitated barium sulfate and titanium dioxide, and over said first layer of mineral-coating a hydrophilic layer of mineral-coating consisting essentially of titanium dioxide, cellulose derivative adhesive and a cured amino-aldehyde resin, said hydrophilic layer being free from hydrous mineral pigment and being insoluble throughout its depth.

*PHOTO-SENSITIVE COATED PAPER PLATE FOR PHOTO-LITHOGRAPHY. U. S. Patent 2,778,735 (Application 10-1-53). Frederic E. Brinnick, Towers Doggett and Raymond L. Oransky (Assigned to S. D. Warren Co., Inc.). Official Gazette 714, No. 4, January 22, 1957, p. 761. A photo-sensitive coated paper product capable of being transformed by actinic light into a planograph printing plate comprising a paper base having a calendered coating layer thereon, said coating consisting essentially of an insolubilized carboxymethylhydroxyethyl cellulose adhesive in which the ratio of carboxymethyl groups to hydroxyethyl groups is within the range from 0.3 to 1 and in which the degree of substitution of anhydroglucose units is greater than 0.8 and a greater quantity of a non-hydrous pigment of the group consisting of blanc fixe and titanium dioxide and a photo-sensitive layer over said coating, said layer comprising a photo-sensitizer taken from the group consisting of (1) diazonium salts corresponding to the formula



wherein

R stands for a member of the group consisting of aryl groups and aryl groups substituted by a member selected from the group consisting of alkyl, alkoxy and carboxyl groups and halogens.

R_1 stands for a member of the group consisting of hydrogen and alkyl,

N stands for nitrogen,

Ar stands for an aromatic residue selected from the group consisting of phenylene and phenylene substituted by a member of the group consisting of alkyl, alkoxy, aroxy, arylsulfamido, and halogen, and

X stands for the equivalent of an anion of an acid

(2) the condensates of (1) with aldehydes, (3) sulfonates obtained by reaction of a sulfite upon (1), and (4) sulfonates obtained by reaction of a sulfite upon (2).

PAPER AND INK

LATEX EMULSION PAINT TECHNOLOGY APPLIED TO PAPER COATINGS. J. P. Talley, J. P. Davis and R. E. Benton. TAPPI 39, No. 10, October, 1956, pp. 160A, 161A, 162A, 163A (4 pages). This paper has been divided into three main topics: (1) emulsion polymers, (2) components of a latex emulsion paint coating, (3) dispersion equipment. Important properties are discussed for the following oil-in-water emulsions: (1) Styrene-Butadiene, (2) Butadiene-Acrylonitrite, (3) Polyvinyl Chloride, (4) Polyacrylic, (5) Vinylidene Chloride-Acrylonitrile. The section on components presents information about emulsifiers and dispersants, pigments, protective colloids, preservatives, antifoam agents, and binders. Suitable equipment for pigment dispersion and emulsion manufacturing is also listed.

*CHARACTERIZATION OF INKS BY PAPER CHROMATOGRAPHY. C. G. Macris and M. D. Riganezis. Anal. Chim. Acta. 13, 129-34 (1955); Chemical Abstracts 50, No. 4, Feb. 25, 1956, col. 2988. Methods are described for characterization of inks by using circular-paper chromatography. Quantities of ink examd. are of the order of 0.1 mg. Chromatograms were studied by means of ultraviolet light, by using various reagents such as KOH, H_2O_2, $K_4Fe(CN)_6$, and $Na_2S_2O_4$,2-H_2O.

NEW STARCH PRODUCTS IN COATING ADHESIVES. Robert W. Bond and Daniel E. Lucas. TAPPI 39, No. 10, October 1956, pp. 158A, 159A and 160A (3 pages). The kinds of starch available for coating adhesives are described. The most widely used for high solids work are the enzyme converted starches. The undesirable factor of this process is that reducing sugars with no adhesive properties may be formed. 5 to 10% sugar can detract from the adhesive strength of the starch. The best starch adhesives are the white Dextrines. By daytime conversions in the presence of heat and acid allow viscosity reduction to the point of developing some cold water solubility with forming significant quantities of reducing sugars. Advantages are improved viscosity, stability and better adhesion.

FLOCCULATION OF PHTHALOCYANINE BLUE. E. Gustave Shur. Interchemical Review 15, No. 2, Summer 1956, pp. 31-39 (9 pages). This paper is concerned with a study of the effect of changes in the type and polarity of the continuous liquid phase (vehicle) upon flocculative tendencies of the solid discontinuous phase (copper phthalocyanine blue).

*METHOD OF CAST CALENDERING PAPER. U. S. Patent 2,769,725 (Application March 20, 1953). Robert T. Hart (Assigned to S. D. Warren Corp.). Official Gazette 712, No. 1, November 6, 1956, p. 150. In a process for producing a coated paper having a level surface, comprising applying aqueous liquid to a dry coating surface of a coated paper, the coating of such paper comprising a hydrophilic swellable protein, to wet said dry coating surface and immediately thereafter pressing said wetted coating surface against a highly polished, smooth, finishing surface with which said wetted coating surface is kept in contact while moisture is evaporated therefrom and thereafter removed, the improvement comprising contacting said wetted coating surface, before it is pressed against said finishing surface. with formaldehyde, and maintaining the surface of the coating in contact with the finishing surface while the pH of the surface of the coating is maintained between 7.3 and 9 by the presence of a member of the group consisting of amines and quaternary ammonium hydroxides having a boiling point above about 125°C. and a basic ionization constant between about 10^{-3} and 10^{-7} and until the time when the coated surface is removed from contact with the finishing surface.

LITHOGRAPHY - GENERAL

*TREATMENT OF LITHOGRAPHIC WASTES. John J. Baffa and Harold E. Orford. Sewage and Ind. Wastes 27, 1032-5 (1955); Chemical Abstracts 50, No. 12, June 25, 1956, col. 8942. Waste waters from manuf. and use of lithographing solns. were treated for sub-surface disposal. Sexivalent Cr was removed by reduction with $FeSO_4$ and pptn. by addn. of lime to pH 8.5-9.0. Suspended and colloidal solids were removed by addn of $FeCl_3$ with the $FeSO_4$. Color was removed by Cl or

activated C. Volatile solvents were removed by aeration.

*LOCK-UP MECHANISM FOR DRY OFFSET PRINTING PLATES. U. S. Patent 2,768,578 (Application Oct. 8, 1953). John W. Park and Otto R. Wolf (Assigned to Tribune Company - Chicago). Official Gazette 711, No. 5, October 30, 1956, p. 979. In a web printing press, a plate cylinder having provision for attachment thereto of a set of thin, flexible printing plates for offset printing comprising two plates around the cylinder, and lock-up mechanism for each of said plates including: a plate-actuating bar positioned within the cylinder and having projections thereon, said plates having inturned edge portions provided with holes for receiving said projections whereby a plate may be connected to said actuating bar, a shaft inside the cylinder on which said plate-actuating bar is mounted, means for pivotally moving said bar to cause tightening of the plate circumferentially on the cylinder, an auxiliary bar hingedly mounted on said shaft adjacent said plate-actuating bar and being normally movable therewith as a unit but also being arranged for independent pivotal movement on said shaft, said auxiliary bar being engageable with an inturned edge portion of the plate and being accessible from the exterior of the cylinder for movement relative to said actuating bar to disengage said inturned edge of the plate from the projections on the latter bar. In a web printing press, a plate cylinder having provision for attachment thereto of at least three sets of thin, flexible printing plates for dry offset printing, each set comprising two plates around the cylinder, separate plate lock-up mechanisms for each of said plates, and separate adjusting mechanisms for each of said plates whereby the plates may be individually adjusted length-wise of the cylinder to variable final positions for margin adjustment, at least one of said adjusting mechanisms being disposed between a set of said plates at an end of the cylinder and a set intermediate the end sets of said plates.

*STREAK ELIMINATOR FOR OFFSET DUPLICATING MACHINES. U. S. Patent 2,771,840 (Application February 16, 1955). Herbert Jacobs, Joseph Ricco and Paul Guglielmo. Official Gazette 712, No. 4, November 27, 1956, p. 704. An ejector streak eliminator for an offset duplicating machine of the type including at least one pair of spaced ejection wheels connected by parallel slide arms, comprising a pad support including an intermediate portion, pad-engaging means at opposite ends of said portion, means on said portion for engaging the respective slide arms, and cleaning pads engaged by said pad-engaging means, said cleaning pads being adapted to contact said wheels, said pad-engaging means comprising flat heads integrally formed upon opposite ends of the intermediate portion, the pads being removably engaged by the heads, said heads including parallel side flanges adapted to engage opposite sides of the pads, the slide-arm-engaging means comprising a pair of parallel ears integrally formed upon opposite sides of the intermediate portion.

*PLATE CLAMP. U. S. Patent 2,775,198 (Application August 27, 1953). Thomas H. Johnson and Anthony J. Mueller (Assigned to Harris-Seybold Corp.). Official Gazette 713, No. 4, December 25, 1956, p. 718. For a printing machine, a cylinder having a length-wise gap therein, a flexible printing plate wrapped around said cylinder, a pair of bars within said gap secured to the respective ends of said plate, a pivot for connecting an intermediate point of one of said bars to said cylinder within said gap, means for tieing the unpivoted bar to said pivoted bar crosswise of the gap effective to prevent bodily movement of the unpivoted bar away from the pivoted bar while permitting endwise movement of the unpivoted bar, and means for skewing the pivoted bar about its pivot.

*MOUNTING FOR FOUNTAIN ROLL. U. S. Patent 2,777,388 (Application May 11, 1954). Henry F. Meyer (Assigned to Harris-Seybold Co. Inc.). Official Gazette 714, No. 3, January 15, 1957, p. 416. In an inking mechanism, a rotatable fountain roller having a fountain portion of a given diameter, a rigid fountain

body comprising integral side walls having coaxial bores for journalling said fountain roller, said side walls being spaced apart a distance less than the length of said fountain portion, an ink metering fountain blade mounted on the body and having an edge adapted to closely engage the roller, said blade extending the full distance between the inner sides of said side walls and being inclined with respect to the roller to form an ink trough together with said roller and said side walls, said bores being of such size relation with respect to said fountain roller as to provide for adequate sealing to prevent entrance of ink into said bores, at least one of said bores being slotted to permit a small degree of flexing of a portion of the fountain body surrounding the bore remote from the main portion of the rigid fountain body, first screw means for exerting pressure to move the remote portion away from the main portion to permit ready insertion of the roller endwise through said bearing during assembly, second screw means for drawing the remote portion to the main portion, said first and second screw means being complementary to each other to enable locking of said remote and main portions in ink sealing association relative to the roller without restricting rotation of said roller, and compressible sealing means in said slot, said sealing means closely engaging the roller to prevent ink carried around said roller from entering the bore at the slot.

*REGISTER AND ADJUSTMENT FOR PRINTING MACHINES. U. S. Patent 2,775,935 (Application Feb. 8, 1955). Robert Reinartz and Oskar Morgenlaender (Assigned to Maschinenfabrik Augsburg-Nurnberg A. G. Germany). Official Gazette 714, No. 1, January 1, 1957, p. 50. A register adjusting mechanism for offset printing presses, comprising a plate cylinder axle having a drive gear and an axle extension, a housing having integral outer and inner concentric cylinders enclosing said axle extension; a first cylindrical member telescopically mounted over the free end of said axle extension and having its outer surface threadedly

engaged with the inner surface of said inner cylinder, first handwheel means geared to said first member for turning the same, and first bearing means between said first member and said axle extension for axially displacing said axle upon turning said handwheel; a second cylindrical member mounted between said outer and inner cylinders and threadedly engaged with the inner surface of said outer cylinder, second handwheel means geared to said second member for turning the same, and connecting means between said second member and said plate cylinder drive gear for peripherally turning said plate cylinder upon rotation of said second handwheel.

*METHOD OF DAMPENING A LITHOGRAPHIC PLATE OR STONE AND A DAMPING ROLLER FOR USE IN THAT CONNECTION. U. S. Patent 2,775,195 (Application May 15, 1953). Hermann Heinrich Martin. Official Gazette 713, No. 4, December 25, 1956, p. 717. A method of dampening the ink free areas of a lithographic plate comprising the steps of wetting a damping roller having an outer seamless, water absorbing cover that consists of a tubular knitted cut velour fabric having a dense and deep pile of single threads with free ends providing a felted, homogeneous working surface, and rolling the damping roller across the lithographic plate so that water is uniformly transferred from the homogeneous working surface of the roller to the ink free areas of the plate.

GRAPHIC ARTS - GENERAL

BOXBOARD SPECIFICATIONS FOR GRAVURE PRINTING. J. M. Kernan. TAPPI 39, No. 10, October, 1956, pp. 42A, 44A, 46A, 48A, 50A, 52A, 54A (7 pages). The boxboard requirements for gravure printing are discussed in this article. The board variables that affect printability are: (1) formation, (2) smoothness, (3) ink receptivity, (4) caliper variation, (5) levelness, and (6) density. In actual practice it has been found that formation variations for gravure are not as serious as for letterpress or offset and that lack of smoothness can be

overcome by compressibility. The following is wanted for good gravure printing on boxboard in the order of importance: (1) soft top liner, (2) compressible filler, (3) little or no surface sizing, and (4) little or no wire marks for "half-tone" printing.

*RUBBER LATEX ADHESIVES. James A. Watt. American Boxmaker 45, No. 3, March, 1956, pp. 9-11; Bulletin of the Institute of Paper Chemistry 26, No. 8, April, 1956, p. 617. The increased use of latex adhesives today has received its main impetus from the advent of synthetic latex, the demand for specialty adhesives to keep pace with new packaging techniques and materials, an increased use of foil, and new packaging methods such as self-seal cartons. The more popular end-use applications for latex adhesives include self-seal products (tape, envelopes, folding cartons, etc.), use on transparent films, and the bonding of grease-proof boards and other difficult surfaces. Problems in machining and stability which previously limited the use of the adhesives have been overcome so that they may now be used with the same confidence as dextrin or resin adhesives.

*CORROSION OF ALUMINUM IN CONTACT WITH PAPER. T. H. Angel. Paper Box Bag Maker, April, 1956, pp. 214, 216; Bulletin of the Institute of Paper Chemistry 27, No. 4, December, 1956, p. 290. Corrosion of aluminum foil is increased by presence of moisture and electrolytes and is favored by an acid condition. Paper to which foil is laminated is considered safe if the moisture content is less than 7%, chloride less than 0.1%, and sulfate (as anhydrous sodium sulfate) less than 0.2%, and if the pH value is at least 5. These amounts are relative, i.e., when the moisture content is increased the content of chloride and sulfate must be decreased and the pH value increased. Where chloride content in paper is high, inhibitors such as sodium benzoate appear to be of little value. In thick papers and boards, corrosion may occur when the total moisture content of the material is apparently safe, since the moisture may migrate to the layer of the material

contacting the aluminum. The most important step to be taken in preventing corrosion is the use of paper virtually free from chlorides.

*ENGRAVING STYLUS. U. S. Patent 2,769,199 (Application July 1, 1952). John A. Boyajean (Assigned to Fairchild Camera and Instrument Corp.). Official Gazette 712, No. 1, November 6, 1956, p. 17. A stylus for engraving a half-tone plate for image reproduction comprising: a metallic shaft terminating in a deforming tip consisting of a series of coaxial steps, an axial cross section through said steps having a mean outline of non-linear configuration effective to impart a non-linear penetration-deformed area characteristic to a plate engraved by the stylus.

*METHOD OF FIXING ELECTROSTATIC POWDER IMAGE. U. S. Patent 2,776,907 (Application July 18, 1952). Chester F. Carlson (Assigned to The Battelle Development Corp.). Official Gazette 714, No. 2, January 8, 1957, p. 290. In a process wherein an electrostatic image corresponding to a pattern of light and shadow to be reproduced is made visible by depositing powder on a surface in conformity with said electrostatic image and affixing said powder in image conformation to a support material, the improvement comprising affixing said powder in image conformation by introducing said support material into the vapor of an organic liquid solvent for an adhesive constituent of at least one of the materials from which said powder image and said support material are formed, said vapor and said support material being at ambient temperature and said vapor being at a partial pressure exceeding the vapor pressure of solvent from a tacky solution of said adhesive constituent, and then removing said support material from said vapor after said adhesive has become tacky, and removing said solvent from said adhesive to permanently bond said image to said support material.

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LITHOGRAPHIC ABSTRACTS - APRIL, 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

SETTING UP A STRANGE CAMERA - FOR HALFTONES. John Pince. The National Lithographer 63, No. 12, December, 1956, p. 12, 13, 14 (3 pages). The author in part two of this article gives more of his ideas on setting up a camera to get the most efficient dot. The effects of variables, such as time, temperature and age of the developer in developing halftones is described. The multiple stop method of shooting halftone positives is also described.

RELIEF-PLANOGRAPHIC CONVERSION - Part II. Eldon L. Thompson. Graphic Arts Progress 3, No. 4, July-August, 1956, pp. 1-2 (2 pages). The double-offset method of making conversions from relief to offset plates is described. Tables show the process elements involved, cost of equipment, materials and labor time involved for the 5 conversion methods; double transfer, reproduction proof, brightype, translucent proof, and direct image.

*IMAGE PROCESSING. L.S.G. Kovasznay, H.M. Joseph and M. Newman. National Bureau of Standards Report No. 4108, June, 1955, 61 pp; Monthly Abstract Bulletin 42, No. 8, August, 1956, p. 417. The paper is concerned with the process of reproducing photographs or similar images where the image is illuminated by a small scanning spot whose brightness is caused, by means of a photocell and a feedback circuit, to be some inverse function of the local transmittance of the image being scanned. The reproduction may be obtained as a photographic print, by placing a sheet of sensitive material in contact with the original, or as a display on the face of a cathode-ray tube driven in parallel with the one providing the scanning spot. The main consideration is given to two particular ways of modifying the reproduction, which are called "contour enhancement" and "contour outlining." Contour enhancement is a means of improving the sharpness of the image by increasing the steepness of all density gradients in the image. Contour outlining involves reproductions in which the

density of the reproduction is proportional to the density gradient of the original, or, alternatively, a continuous-density original is converted to a line drawing by selecting only those gradients lying above a certain minimum. It is pointed out that each point of the original should be scanned in four directions; and a scanning method for doing this is described. The text of the paper covers both mathematical analysis and experimental description; the figures include explanatory diagrams, illustrative photographs, and circuit diagrams for the equipment used.

*PHOTOGRAPHIC REDUCERS. Den Grafiske Hojskoles Forskningslab pp. 7-17, No. 6, July, 1955; Monthly Abstract Bulletin 42, No. 3, March, 1956, p. 130. Farmer's Reducer is used on negatives and positives, but it keeps badly, and this causes the lithographer some inconvenience. The Grafiske Hojskoles Forsknings-laboratorium therefore made some comparative experiments with six reducers (Farmer's, potassium-permanganate, Belitski's, ammonium persulfate, cerisulfate, and ammonium cerinitrate). If reduction in halftone work is required in areas of great density, the persulfate reducer is suitable. In areas with low density, Farmer's Reducer is appropriate. For an even reduction of the whole density range, a number of reducers are available, viz., Belitski's, potassium permanganate, ammonium cerinitrate, and, finally, ammonium cerinitrate plus ammonium nitrate. On screens, Farmer's Reducer remains the most suitable one, as it attacks mainly the edge of the dot.

*BIGGER TUNGSTEN LAMPS ARE ON THE WAY. A. L. Salway. Kinematograph Weekly, 465: 101, 105, Dec. 15, 1955; Monthly Abstract Bulletin 42, No. 8, August, 1956, p. 401. Lamps of 115-v., 10-kw. rating are ousting the carbon arc for studio work, especially with color film. A 20-kw. lamp is now being developed by the British Thomson-Houston Company Limited; some of the problems arising in the construction of these powerful lamps are discussed.

*XENON ARC DISCHARGE LAMPS FOR FILM AND TELEVISION INDUSTRIES. H. W. Cumming. Brit. Kinematography, 28: 5-22, January, 1956; Monthly Abstract Bulletin 42, No. 8, August, 1956, p. 400. The gas xenon, although investigated in the heavy-current, arc-discharge condition, had not been used commercially until the development, in Great Britain, of continuously burning arc-discharge lamps of high luminance and high lumen output. This work followed a study of electronic-flash discharges of short duration. A class of light sources, sometimes referred to as Gas Racs, was subsequently produced, capable of giving full light instantaneously at a usefully high efficiency and with a color virtually identical with sunlight. The general characteristics and designs of these types of light sources are reviewed at length, with the intention of indicating both applications and the more obvious possibilities for future development. Two applications in the illumination of film and television studios are referred to and discussed. In the field of cinematograph projection, it is shown that short-arc xenon lamps have reached a phase sufficiently advanced for them to compete successfully with carbon arcs.

USES OF ELECTRONICS IN GRAPHIC ARTS INDUSTRY - Part VII - Springdale Scanner RCA Color Corrector. Francis A. Westbrook. Printing Equipment Engineer 86, No. 11, August 1956, pp. 63, 64, 99, 100, 101, 102 (6 pages). The Springdale Scanner of Time, Incorporated and the RCA Color Corrector are illustrated and described. The typical procedure of indirect process photoengraving is reviewed with discussion of process ink requirements and failures, and the RCA inter-chemical approach to electronic correction is outlined.

HIGH-SPEED TV OFFICE DUPLICATOR. Electronic Design 5, No. 4, February 15, 1957, p. 5 (1 page). Original documents can be duplicated at the rate of 17,000 characters of elite type per second with a TV duplicating device developed by Stanford Research Institute, Menlo Park, California. A prototype, developed for A. B. Dick Co., prints the text from a 35 mm film on a 3/4 in. wide type.

Proposed modifications will enable duplication on standard size letter paper. At the point of transmission, a spot of light 0.006 in. in diameter scans the original document. Phototubes are positioned to receive light reflected from the document as it is scanned by the light beam. The tubes emit electrons proportional to the amount of light reflected to them. At the receiver, the signal is amplified and applied to the grid of the cathode-ray tube. Whenever the transmitter beam strikes a dark spot, such as a portion of a language character, on a master document, the tube grid gets a greater positive electric charge. Immediately, a small dot of electric charge is deposited - by means of a wire array in the tube face-plate - on copy paper. After 1,700 successive scannings, a sufficient number of electrically charged dots is deposited on the paper to form a legible reproduction.

PLANOGRAPHIC PRINTING PROCESSES

*COMPOSITION FOR USE IN ELIMINATING OIL AND GREASE SMUDGES FROM OFFSET PRINTING MATS AND PLATES. U. S. Patent 2,780,168 - Application November 16, 1951. Oliver S. Nichols (Assignor of 1/2 to John H. Schneider). Official Gazette 715, No. 1, February 5, 1957, p. 68. A method for rendering oil and grease smudges present on planographic mats and plates incapable of attracting ink during the planographic process comprising intimately contacting said smudges with a composition comprising as an aqueous phase 10-80 parts by volume of a water-miscible aliphatic alcohol selected from the group consisting of glycerol and glycols, water and 10-60 parts by volume of a colloidal solution containing 1-15% by weight of silicic acid in water, said aqueous phase having a pH in the range of 3-5, and as a non-aqueous phase 10 ml. per 100 ml. of solution of a petroleum ether fraction having a boiling point within the range of 300-420°F., said non-aqueous phase being dispersed throughout said aqueous phase in the form of droplets as a result of agitation of the two phases together at the time of application of said composition to said mats and plates.

PHOTOLITHO NOTES - BIMETALLIC PLATE. J. S. Mertle. The National Lithographer 63, No. 12, December, 1956, p. 32 (1 page). A patent has been issued on a bimetallic printing surface and a method of producing images thereon. This plate consists of a low carbon steel (SAE 1000 series) baseplate bearing a surface of metallic chromium electrolytically deposited to a thickness of 0.00005 inch. Deep etch image is made using bichromated gum, etching with hydrochloric acid and calcium chloride and removing hardened gum with alkaline metal cleaner. Dilute solution of ortho-phosphoric acid is used to make chromium non-image areas grease repellent. Steel areas are made ink receptive by treating with a mixture (formula stated) hydrocarbon base liquid detergent, 15% solution of phosphoric acid and standard litho developing ink.

SURFACE TREATMENT AND FINISHING OF LIGHT METALS - Plating on Aluminum-Zinc Immersion Processes. S. Wernick and R. Pinner. Metal Finishing 55, No. 3, March, 1957, pp. 58, 59, 60, 61 (4 pages). Gives cleaning preparations; acid etches; zinc immersion baths; and plating (baths) that can be used for copper, brass, zinc, cadmium, silver, precious metals, nickel and chromium.

POROSITY DETECTION IN PLATED COATINGS. Metal Finishing 55, No. 3, March, 1957, p. 62 (1 page). National Bureau of Standards has developed a non-destructive procedure for ascertaining the size and position of pores produced in electroplated coatings. The method involves photographing an electroplated specimen exposed to radiation.

THE ACME ONE-BITE ETCHING PROCESS. R. S. Cox and R. V. Cannon. The Process Journal, No. 19, Autumn, 1956, pp. 11, 12, 13 (3 pages). This process requires the use of a magnesium plate which has a very thin deposit on the surface. The advantages claimed for the process are: (a) A depth of .025 in. to .030 in. for line work needs an etching time of only 12 to 15 minutes. Halftones are said to etch to a depth of .005 in. to .006 in. in about five minutes, for either single plates or stripped up batches; (b) The completed line, line and tone combination,

or halftone plates, have the good qualities of magnesium for lightness in weight, and the capabilities of long runs on the machine; (c) Compared with conventional line etching, the line etcher has healthier and cleaner conditions of working.

PAPER AND INK

*OFFSET LITHOGRAPHY; ITS REQUIREMENTS AND MOST SUITABLE PAPERS. Olin Freedman. American Paper Merchant 53, No. 11: 17-19, 70; November, 1956. Bulletin of the Institute of Paper Chemistry 27, No. 5, January, 1957, p. 435. Differentiations between offset lithography (I) and other printing processes include the fact that in (I) both printing and nonprinting areas are carried in the same plane, and printing is accomplished by chemical rather than physical means. The process of (I) is outlined, and the requirements of paper to accomplish the most acceptable results with the greatest ease and highest production are discussed under headings of the various properties - flatness, moisture resistance and absorbency, surface ink absorbency, cleanliness, pick strength, stability, grain direction, squareness, alkalinity, and opacity and brightness.

*PLUCKING STRENGTH TESTER. Anon. World's Paper Trade Review, Vol. 145, No. 9, 12 Apr. 1956, p. 510; Printing Abstracts 11, No. 6, June, 1956, p. 346. A test strip is attached by melted shellac to a flat brass bar. On the casing of a rotatably-supported drum there is a clip to which the free end of the test strip is affixed. The brass bar itself is set up in a holding device that can pivot about the axis of the drum, so that the extension of the bar forms with the taut test strip a certain angle. This angle can be adjusted on a scale to any value from 0 to 90°. A pendulum weight fitted to the pivoting drum exerts during the downward pivoting of the bar a pull on the test strip, until a separation takes place of the test piece on the adhesive edge of the bar. The force required for tearing is indicated by a pointer on a scale from 0 to 1,000 g. and, after changing the pendulum, from 0 to 2,000 g. The 'plucking strength' of the paper is for practical purposes the tearing load obtained,

calculated for 1 cm. width of strip and at an effective angle of 36°.

*THE OPACIMETER - AN ESSENTIAL TOOL FOR PAPER AND PRINT. Proc. Tech. Sect. Brit. Pap. Bd. Mkrs. Ass., Vol. 36, Part 3, Dec. 1955, pp. 617-35; Printing Abstracts 11, No. 5, May 1956, p. 282. The paper is intended to supplement the Brit. PBMA Testing Method PT 24: pm 1955, The Printing Opacity of Paper. Three types of commercial opacimeter (the Hilger-Patra opacimeter, Eel opacimeter and the Bausch and Lomb instrument) are described and causes of the errors commonly encountered in their use are explained. The results of comparative tests on these opacimeters are summarized and examined statistically. Finally, the conversion of printing opacity to contrast ratio or vice versa is discussed.

PENETRATION OF INK INTO PAPER AND ITS RELEVANCE TO PRINT QUALITY. R. R. Coupe and A. H. Smith. Journal of the Oil and Colour Chemists' Association 39, No. 8, August, 1956, pp. 579-608 (30 pp). This article begins by presenting a discussion of the various test methods developed for studying ink absorption into paper. The historical background together with the bibliography is fairly complete. The present work involves an apparatus for studying the rate of ink penetration based on the optical principle. That as ink penetrates there is a fall in the amount of light reflected from the reverse side of the sheet. Some indicated conclusions are also discussed as (1) penetration of pigment, as well as vehicle, into the paper can occur; (2) filtration of vehicle from pigment will vary from system to system; (3) two stages of penetration are important (a) very rapid penetration during printing due to pressure, (b) slower penetration later due to capillary forces. The work appears well supported by graphs and tables.

*HYDROPHOBIC, ORGANOPHILIC PIGMENTS. British Patent 745,865, appl. 19 Nov. 1953. American Cyanamid Company. Patent Abstract Journal No. 3491, 7 Mar. 1956, p. 107B; Printing Abstracts Vol. 11, No. 7, July, 1956, p. 409. Pigment particles coated with a heat-stabilized coating of 0.5-20% of at least one high molecular weight pyridinium chloride, e.g. cetyloxymethyl pyridinium chloride are particularly suitable for use in lithographic inks.

*THE RESISTANCE OF PRINTED MATTER TO ALKALIS, SOAPS AND DETERGENTS. M. Hartmann. Graph. Woche, No. 8, 20 Mar. 1956, pp. 161-3 (In German); Printing Abstracts 11, No. 6, June, 1956, p. 343. These properties are discussed in general and the recommended standard tests drawn up by a committee of the German printing ink manufacturers' association are described.

*THE CHEMISTRY OF DRIERS. W. Brushwell. American Paint Journal, 19 Dec. 1955, pp. 82, 84, 88, 90, 92, 94, 96, 100, 102; Printing Abstracts 11, No. 6, June 1956, p. 343. The use of octoates, linoleates, resinates, naphthenates and tallates as driers, the physical properties of commercial driers and their analysis and selection (with particular reference to varnishes, alkyd resins, paints, enamels and printing inks) are discussed.

ABSORPTION OF WATER BY OFFSET INKS. J. H. Bitter. IGT Nieuws Vol. 9, No. 2, Feb. 1956, pp. 28-31 (In Dutch); Printing Abstracts 11, No. 6, June, 1956, p. 342. The effects of increased emulsification of water in offset inks on the final printed result has been studied by the IGT and the results are given.

WHAT IS REQUIRED IN COATED PAPER FOR HIGH SPEED LETTERPRESS PRINTING. Alex Glassman. Pulp and Paper 31, No. 4, April 1957, pp. 62-67 (6 pages). Modern high speed printers require of coated paper stocks that they have particular qualities. These are: 1. runnability of the paper in the press and operations that follow; 2. ability to reproduce art copy with fidelity, uniformly, and with desired ink gloss; and 3. a glossy, white appearance and smooth feel. This article discusses properties of paper rolls that affect runnability and running properties of the paper related to quality such as (1) impression tolerance (2) absence of blistering (3) scorching (4) chalking and dusting properties (5) adequate pick resistance (6) good register for roll to roll (7) reliable splices (8) shrinkage across the grain and (9) tensile at the fold. An instrument developed for the hot fold tensile test is described. Also a number of tests, developed or modified by the printer, are described which measure ink absorption and absorption variations

in coated papers are described as well as the Donnelley-Hull drawdown tests which measure paper formation and caliper uniformity. The meaning and determination of the term "impression tolerance" is also discussed.

LITHOGRAPHY - GENERAL

*THE MEASUREMENT OF HUMIDITY. D. E. Brooks. Instrum. Engr. Vol. 1, No. 8, Oct. 1955, pp. 155-61; Bull. Brit. Sci. Instrum. Res. Ass., Vol. 10, No. 11, November 1955, p. 327; Printing Abstracts 11, No. 3, March 1956, p. 181. The methods of measurement most suited to industrial applications are discussed, including the most usual methods of measurement and one new one. The history of the subject is reviewed and an outline of essential theory is given. The applications in the textile and paper industries are dealt with in some detail.

*A REVIEW OF STATIC ELECTRIFICATION. D. F. Arthur. J. Text. Inst., Vol. 46, No. 12, Dec. 1955, pp. T721-34; Printing Abstracts 11, No. 2, February 1956, p. 82. The mechanism of charge separation between solids is discussed in detail, including the short-range dissipation occurring during separation. The dissipation of electric charges by various methods is described and the action of anti-static agents discussed. A review of experimental methods employed for the detection and measurement of static electrification is presented.

RHEOLOGY OF SODIUM CARBOXYMETHYLCELLULOSE SOLUTIONS. E. H. deButts, J. A. Hudy, and J. H. Elliott. Industrial and Engineering Chemistry 49, No. 1, January 1957, pp. 94-98 (5 pages). A new theory of molecular arrangement in CMC solutions may explain their rheological behavior. As a burr will enmesh hair, poorly soluble crystalline material may entrap soluble CMC in gel centers held together by electrostatic and hydrogen bonding forces. Aggregation and dispersion of these centers may account for many properties that figure importantly in selecting proper materials and methods for preparing solutions.

GRAPHIC ARTS - GENERAL

FACTS ABOUT DERMATITIS. John Ellis. The Process Journal No. 19, Autumn 1956, pp. 19-20 (2 pages). Dermatitis is a real, if well-known hazard in the photo-engraving industry, the principal causes being the bichromates, chromic acid, metol and to a lesser extent, formaldehyde. This is a summary of the Haldane Society Conference, "Dermatitisin Industry," held on Saturday, 19th November 1955, and the Haldane Society Bulletin, "Dermatitis and the Law." The principal speakers were Dr. Michael Feiwel, dermatologist and Mr. H. Nyman, Ll.B., solicitor.

COLOR TESTING BOOTH IN ACTUAL OPERATION. Printing Monthly 8, No. 10, January, 1957, pp. 6-7 (2 pages). The press sheet inspection booth developed in 1948 by Copifyer Corporation and in cooperation with General Electric Corporation is described. Two of these booths have been successfully used in the Partenon Press plant at Nashville and their experience is described. Complementary color light is given for higher contrast viewing and matching strength of sheets, for example, blue light is used for viewing yellow properties. The colored theatrical gelatines used to cover sets of the 20 white fluorescent tubes are - light red No. 15, dark urban blue No. 37, and medium green No. 40. These were obtained from Rosco Laboratories, 367 Hudson Ave., Brooklyn 1, New York.

*MOISTURE AND HUMIDITY CONTROL PROBLEMS OF THE SMALLER WORKS. B. J. Peach. Brit. Print., Vol. 69, No. 4, Apr. 1956, pp. 22-7; Printing Abstracts 11, No. 6, June, 1956, p. 341. The importance of humidity control is discussed, and different types of hygrometer and methods of controlling humidity without the expense of complete air conditioning are described.

*IMPROVED BONDING OF INK TO POLYETHYLENE. R. N. Chapman and P. Colombo. Nucleonics, Vol. 13, No. 10, 1955, p. 12; Rev. Curr. Lit. Paint, Col., Varn., Vol. 28, No. 168, Nov.-Dec. 1955, p. 864; Printing Abstracts 11, No. 5, May

1956, p. 314. y-Irradiation from a Co-60 source, to a dose of 0.5 or more, oxidises the surface of polyethylene, changing its ink-retention properties from poor to excellent. A usual treatment is differentially heating the film in a flame. Advantages of the new y-ray treatment are: both sides are made printable; the film can be treated in mill rolls, eliminating the winding rewinding problem; and the treatment is uniform and consistent. Costs have not been established, but might be high compared with flame treatment.

A MICRODENSITOMETER FOR REFLECTING SAMPLES. Joseph H. Altman and Keith F. Stultz. Photographic Science and Technique 4, No. 1, Feb., 1957, pp. 10, 11, 12 (3 pages). This paper describes a microdensitometer for reflecting samples in which the sample is illuminated with a Leitz Ultropak Incident-Light Illuminator and curves of density versus distance are recorded by a Brown (Electronik) Recorder on rectangular coordinates. The sensitivity of the system is sufficient to scan color print materials through the required filters. Resolution is 500 lines/mm on a test grating, and the stray light is estimated at 2.0 percent.

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LITHOGRAPHIC ABSTRACTS

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LITHOGRAPHIC ABSTRACTS - MAY, 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

MEASURING DEFINITION IN LITHOGRAPHY. Warren L. Rhodes. Modern Lithography 25, No. 2, February, 1957, pp. 67, 68, 113 (3 pages). The author discusses the measurement of the elongation of the printed dots (slur) and the increase in size in all directions of the printed dot (fill-in or spread) using both line and halftone test patterns. The printed test pattern can be evaluated either visually or by use of a densitometer. The author relates these measurements to the definition of this image.

PRINT QUALITY IN OFFSET LITHOGRAPHY - Part I. Bruce E. Tory. Process 63, No. 756, December, 1956, pp. 472-477 (6 pages). This article is the first installment of two on print quality in lithography. The author discusses the relationship of tone reproduction, smoothness, and resolution to print quality. The influence of variables such as dot sharpness, plate grain, paper and ink, placement of halftones, mottle, ink spread, slur and doubles are described.

PRINT QUALITY IN OFFSET LITHOGRAPHY - II. Bruce E. Tory. Process 64, No. 757, January, 1957, pp. 10-13 (4 pages). The author continues his discussion of print quality factors; ideal reproduction; the relationship between the halftone transparency and press sheets, practical use of tone reproduction curves, and the four-quadrant diagrams for plotting tone reproduction data.

SCREEN PATTERNS IN FOUR-COLOR HALFTONES. R. S. Cox. Process 64, No. 758, February, 1957, pp. 61-67 (7 pages). The author discusses two types of screen patterns which are liable to appear in four-color halftone process work. One is composed of patches of slightly differing colors, arranged at regular intervals, and the other pattern is in the form of a small repeat dot texture which is often troublesome in wet printing. The causes of these patterns are discussed and illustrated in color.

MATERIALS OF CONSTRUCTION FOR COLOR PROCESSING EQUIPMENT. John R. Turner. Photographic Science and Technique Series II, Vol. 3, No. 4, November, 1956, pp. 137-144 (8 pages). Factors affecting the choice of materials for photographic processing equipment are discussed with particular reference to the requirements of color photographic processes. The effects of photographic solutions on the materials, and the effects of the materials on the film or paper being processed are considered. Specific examples of the type of difficulties that can be encountered are cited to illustrate these effects. The advantageous properties of some of the plastics are described.

SAFE HANDLING OF PHOTOGRAPHIC PROCESSING CHEMICALS. D. W. Fassett. Photographic Science and Technique Series II, Vol. 3, No. 4, November, 1956, pp. 159-161 (3 pages). The safe handling of industrial chemicals in the processing laboratory requires proper control of volatile materials, of caustic or corrosive liquids, and of harmful dusts in the bulk handling of solids. The problems and means of control of skin allergy or skin sensitization to chemicals apt to be encountered in the processing laboratory are discussed in detail.

PLANOGRAPHIC PRINTING PROCESSES

*SOME EXPERIMENTS TO ASCERTAIN THE APPLICABILITY OF THE ANTHRONE METHOD FOR MEASURING THE QUANTITIES OF GUM ARABIC, CARBOXYMETHYLCELLULOSE AND CARBOXYMETHYL-STARCH ADSORBED ON LITHOGRAPHIC ZINC PLATES, AND MEASURING THE HYDROPHILIC QUALITIES OF THESE SUBSTANCES. E. Olsen and C. W. Christensen. Int. Bull. Print. Tr., no. 73, Jan. 1956, pp. 39-43; Printing Abstracts 11, No. 4, April, 1956, p. 238.

LITHO PLATE GRAIN TESTER. Anon. Inland Printer 136, No. 4, Jan. 1956, p. 66; Printing Abstracts 11, No. 4, April, 1956, p. 226. The Lithotest measures the uniformity and depth of the grained surface of lithographic plates. A gauge head, through which air flows, is placed on the plate. The rate at which

air leaks across the grained surface of the plate is amplified and indicated by the position of a float in the instrument (Sheffield Corp., Dayton 1, Ohio).

*DICHROMATED POLYVINYL ALCOHOL DISPERSIONS. Brit. Pat. 743,766, appl. 4 Dec. 1953, publ. 25 Jan. 1956. Jones Graphic Products Co. Pat. Abstr. J. No. 3485, 25 Jan. 1956, p. B2; Printing Abstracts 11, No. 4, April 1956, p. 240. A light-sensitive aqueous coating composition for litho plates containing not less than 76% by weight of polyvinyl alcohol, 2-12% of dichromate sensitizer and 2-12% of phenol.

DEVELOPMENTS IN LITHOGRAPHIC PROCESS COLOR PRINTING. George W. Wilhelm. Graphic Arts Monthly 28, No. 9, September 1956, pp. 100, 102, 104, 106, 110 (5 pages). Masking color correction, electronic scanning, and presensitized press plates are given as example of 20-25 year time spans between new basic ideas and their improvement and acceptance in wide spread use. Many products are ahead of their time in customer needs and we may foresee future progress as they cast their shadow before them. Wilhelm predicts that all future printing plates will have color sensitive coatings and be made direct from copy. Inks will dry immediately and plastic will replace metal for plates.

PAPER AND INK

PROBLEMS OF LITHOGRAPHING GOLD INK. William Byers. The Graphic Arts Monthly 29, No. 1, January, 1957, pp. 74, 76, 146, 148 (4 pages). A printer describes experiments made to produce good gold printing by lithography. Various bronze powders and varnishes were tried as well as the addition of base color. It was found that gold powder added to imitation gold gave more sheen than imitation by itself. A mixture of bronze powder plus varnish gave the best results. Troubles encountered were (1) Gold on uncoated paper not too good, (2) Tarnishing occurs - ink must be mixed as used, (3) Fountain agitators needed to keep bronze from settling, (4) Dampeners destroy metallic sheen.

PAPER QUESTIONS - BRIGHTNESS OF PAPERS - Part I. W. H. Bureau. Graphic Arts Monthly 28, No. 12, December 1956, pp. 202, 204, 232, 234 (4 pages). In this first part of a two part article on the brightness of paper the term itself as applied to paper is discussed as well as how the brightness of white paper is measured. The fundamental factors governing brightness of papers are the pulp used and the effect of bleaching. Dyestuffs are used to tint paper to get more pleasing whites.

PAPER QUESTIONS - BRIGHTNESS OF PAPERS - Part II. W. H. Bureau. Graphic Arts Monthly 29, No. 1, January, 1957, pp. 180, 182, 184, 185 (4 pages). This article continues the discussion of brightness in terms of 1) fiber treatment; 2) fillers; 3) coated paper and 4) fluorescent dyes. In paper, the greater the degree of hydration (beating) the more brightness is reduced. Besides imparting other properties fillers are used to increase paper brightness. The fillers mentioned are clay, calcium carbonate and titanium dioxide. The brightness of coated papers is influenced by body stock brightness and coating properties as pigments, adhesive, pigment-adhesive ratio and amount of coating applied. Ultra-violet rays (sunlight) is converted to visible light by fluorescent dyes to give paper greater apparent brightness.

*HYGROMETER FOR PAPER ETC., WEB. British Patent 741, 164, appl. 18 May 1953, Germany, 19 May 1952, publ. 30 Nov. 1955, P. Lippke. Pat. Abstr. J. No. 3477, 30 Nov. 1955, p. 20; Printing Abstracts 11, No. 2, February 1956, p. 83. A feeler forms the electrode of a condenser which determines the dielectric constant of a moving web, the parts associated with the feeler being mounted on a slide which is movable transversely over the web, and the feeler being able to accommodate itself to variations in position of the web.

*QUICK SETTING INKS AND METHODS OF MAKING. Canadian Pat. 517,426; Brit. Plast. Fed. Abstr., vol. 11, no. 1, Jan. 1956, p. 73; Printing Abstracts 11, No. 4, April, 1956, p. 204. A printing ink consisting of colouring matter

dispersed in a liquid containing a partial condensation product of furfural and 2:4-diaminotoluene, a lesser amount of ethylcellulose and an organic, water-insoluble, non-volatile diluent is set by treating with gaseous sulphur dioxide.

LITHOGRAPHY - GENERAL

*A REVIEW OF STATIC ELECTRIFICATION. D. F. Arthur. J. Text. Inst., Vol. 46, No. 12, Dec. 1955, pp. T721-34; Printing Abstracts 11, No. 2, February 1956, p. 82. The mechanism of charge separation between solids is discussed in detail, including the short-range dissipation occurring during separation. The dissipation of electric charges by various methods is described and the action of anti-static agents discussed. A review of experimental methods employed for the detection and measurement of static electrification is presented.

*THE ANALYSIS AND CONTROL OF NOISE IN LITHO PLATE GRAINING. J. H. Everest. British Printer, v. 69, Nov. 1956, pp. 30-37; Battelle Technical Review 6, No. 2, February, 1957, p. 112a.

WHAT IS THE BEST FOUNTAIN ETCH? Oscar Diehl. The National Lithographer 63, No. 8, August 1956, p. 8, 1 page. A standard fountain solution should not be used to run all jobs. The pH and composition of the fountain etch should be varied dependent on inks used, the forms being printed, the color of ink, the type of plate, the type of paper and the condition of the pressroom.

NEWSPAPERS RUN IN COLOR ON WEB OFFSET PRESS AT RIT. The Inland Printer 138, No. 3, December, 1956, pp. 61-62 (2 pages). A description of a co-operative experiment printing a three-color web-fed job on newsprint. Co-ordinating the work were Rochester Institute of Technology, Graphic Arts Research Department; ATF Webendorfer; St. Petersburg (Fla.) Times; with an assist from suppliers for the job.

New Lithographic Technical Foundation Book Tells Best Ways of HANDLING SOLUTIONS. Modern Lithography 25, No. 2, February, 1957, pp. 49, 51, 54, 57, 117, 119 (6 pages). A reprint of the chapter in the LTF "Formulary," Bulletin 602, that describes the various litho chemicals, the hazards or lack of hazards, and safe methods of handling them.

INVESTIGATE THE SMALL OFFSET. James S. Wilkinson. Canadian Printer & Publisher 65, No. 11, November, 1956, pp. 48, 50, 52, 54, 56 (5 pages). The general introduction discusses the improvements which have been made in the small offset field during the past decade. Improved equipment, increased delivery speeds and adaptions on presses to increase the ease of use have greatly expanded the small press industry. Small presses discussed are: Multilith (various models); Davidson (various models); A. B. Dick; Whitin Masterlith; ATF Green Hornet; Miehle Lithoprint; Rotaprint (various models) and Harris 14" X 20". Auxiliary equipment is also discussed.

HOW DOES MEASURING MAINTAIN QUALITY? Canadian Printer and Publisher 65, No. 11, November, 1956, pp. 45-46 (2 pages). "We must learn to use instruments to achieve the control and standardization necessary to produce good quality consistently. Instruments do not replace craftsmen. They help craftsmen do a better job and make it possible for people with less experience to do an acceptable job." Eyes are unreliable, so are hands. That's why measuring tools are becoming more essential to guarantee consistent product quality. There are illustrations and some discussion of the paper hygroscope, blanket thickness gauge and pick tester.

GRAPHIC ARTS - GENERAL

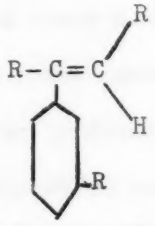
*METHOD FOR DEVELOPING ELECTROSTATIC IMAGES. U. S. Patent 2,784,109. Application Sept. 18, 1950. Lewis E. Walkup - Assigned to The Haloid Company. Official Gazette 716, No. 1, March 5, 1957, p. 190. The method of developing a continuous-tone electrostatic latent image on a surface, wherein said image

comprises electrostatic charges of one polarity variously distributed on said surface to provide potentials which differ for different areas of said surface, the low potential areas corresponding to image high lights, the intermediate potential areas corresponding to middle tones and the high potential areas corresponding to shadows and dark tones, which method comprises effecting a plurality of steps of partial development of said image by closely spacing a conductor in front of said surface and introducing an air suspension of a finely-divided material between said conductor and said surface, at least one of said steps being performed with said conductor held at high-light potential and other of said steps being performed with said conductor held at intermediate potentials, said finely-divided material being charged to a polarity opposite to that of said image.

*PRINTING. British Patent 741,259 - Huebner Co. Appl. 27 Oct. 1953, publ. 30 Nov. 1955; Pat. Abstr. J. No. 3477, 30 Nov. 1955, p. 12A; Printing Abstracts 11, No. 2, February, 1956, p. 98. In a method in which the printing element has an image thereon and is provided with a film of printing liquid and is disposed closely to the material to be printed in a printing zone at which a field of force extends through the image and material, the film of printing liquid and the material are precharged with unidirectional electrostatic charges of opposite polarities prior to disposing the film and the material to the field of force at the printing zone, whereby the electrostatic charges co-operate with the precharges to transfer the liquid to the material.

*PROCESS AND COMPOSITION FOR DEVELOPING AN ELECTROSTATIC IMAGE. U. S. Patent 2,788,288 - Application July 29, 1953. John J. Rheinfrank and William D. Jones - Assigned to The Haloid Co. Official Gazette 717, No. 2, April 9, 1957, p. 352. A process of xerography wherein an electrostatic image is made visible, comprising contacting an image surface bearing an electrostatic image thereon with a finely divided pigmented resin consisting essentially of between

about 5 and 10% pigment in a resin body of about 5 to 25% polymerized butyl methacrylate and the remainder a polymerized blend of monomers of styrene and styrene homologues of the formula



wherein R is selected from the group consisting of hydrogen and lower alkyl, the polymerized blend of styrene monomers having a ring and ball melting point of about 125°C.

TONE REPRODUCTION IN THE GRAPHIC ARTS PROCESSES. Warren L. Rhodes. Pacific Printer, Publisher and Lithographer No. 6, Dec. 1956, pp. 9, 10, 12, 14, 28 (5 pages). This article is the first in a series on color problems in the graphic arts. It covers the general aspects of the theory of tone reproduction and its application in graphic arts. The tone reproduction characteristics of letterpress, gravure, and offset are also discussed.

*XEROGRAPHIC COPIER. U. S. Patent 2,781,704 - Application April 14, 1951. Clyde R. Mayo and Edward Raymond Sabel - Assigned to the Haloid Company. Official Gazette 715, No. 3, February 19, 1957, p. 474. Xerographic exposing apparatus for exposing an electrophotographically sensitive plate to a projected light image of a document to be reproduced adapted to operate in conjunction with other electrical equipment on the same electrical circuit such as xerographic fusing apparatus and the like, said exposing apparatus comprising a cabinet having a lamp compartment and a closed light-impervious camera chamber, said lamp compartment overlying said camera chamber and having extensions projecting respectively forwardly and rearwardly of the ends of said camera chamber, a transparent exposure panel in the top wall of said lamp compartment a plurality of lamps mounted at spaced positions within the

extensions of said lamp compartment adjacent to the periphery of said exposure panel providing at least twice as brilliant illumination of the corners and edges of said panel than at the center portion of said panel, said extensions of said lamp compartment having air vents in the top and bottom respectively thereof to permit free flow of cooling air across said lamps during operation of said apparatus, a hinged cover connected to said top wall of said lamp compartment adjustably positionable over said exposure panel for retaining thereon the document to be reproduced, a wide angle lens having a focal length of less than about 4-1/2 inches mounted in the upper wall of said camera chamber centered beneath said exposure panel, the angle between the axis of said lens and a corner of said exposure panel being greater than 30 degrees and the lamps being positioned beyond the angle of reflection from the exposure panel to the lens, the front wall of said cabinet having a horizontal slot therein below the forward extension of said lamp compartment and opening into said camera chamber to permit the insertion of an electrophotographically sensitive plate into said camera chamber, horizontal guide means adjustably mounted within said camera chamber in cooperation with said slot to receive and guide the plate thereinto and adapted to allow a light shield to be removed and inserted at said plate while in said guide means, and a relay operating to close an electrical circuit including the lamps and simultaneously opening an electrical circuit including other electrical equipment operating from the same power outlet.

MAKE YOUR OWN FILM IDENTITY TESTS. C. L. Blair. Paper, Film and Foil Converter 31, No. 4, April, 1957, pp. 26, 27 (2 pages). The methods by which plastic films may be identified are explained and then summarized in a "Film Identification Chart." Among the plastic films listed are cellophane, ethyl cellulose, cellulose acetate, cellulose acetate butyrate, polystyrene, rubber hydrochloride, vinyl chloride, polyvinylidene chloride, polyethylene, polyvinyl alcohol, and nylon.

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LITHOGRAPHIC ABSTRACTS

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LITHOGRAPHIC ABSTRACTS - JUNE, 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

*PHOTOGRAPHIC PRINTING APPARATUS. U. S. Patent 2,791,162 (Application Dec. 1, 1955). Lew C. Snyder. Official Gazette 718, No. 1, May 7, 1957, p. 60. Photographic means for composing type images on a photographically sensitive sheet, comprising: a housing substantially excluding light; first projector means including a source of light positioned to pass a beam of light in said housing; a sensitized sheet positioned within said housing in the path of travel of said beam; character-bearing means interposed between said source of light and said sheet and having a series of portions movable into line with said beam which are capable of passing light in such configurations as to form various type images when projected on said sheet; means for manually adjusting the relative position of said beam and said sheet in a manner so that type images projected on said sheet may be arranged in composed lines; a target sighting board disposed externally of said housing and having a fixed position in relation to said sheet and a second projector disposed externally of said housing and having a fixed position in relation to said first projector means, whereby said sighting board and second projector change relative position in the same manner as said sheet and said first projector means, said second projector including a source of light positioned to throw a target image on said sighting board, thereby providing indicia externally of said housing of the alignment of said first projector means with said sheet; said first projector means including first lens means interposed between said character-bearing means and said sheet and aligned with said beam of light, said first lens means being movable toward and away from said sheet and being operative thereby to change the size of type images projected on said sheet; said second projector including second lens means adjustable to change the size of said target image to correspond to the size of the type images projected on said sheet; said target image being formed by duplicate character-bearing means disposed between said second

projector and said sighting board, whereby similar type images may be projected on said sensitized sheet and said sighting board; and said duplicate character-bearing means including with each character a projected scale indicating the center and margins of the character, in which there are secondary adjustment means interposed between said second projector and said sighting board forming an upright line indicia projected by said second projector on said board and indicating in normal position the orientation of a properly projected type image, said secondary adjustment means being connectible to said means for adjusting the position of said sheet whereby adjustment of the position of said upright line indicia for crowding and expanding type is shown visually and automatically shifts said sensitized sheet.

*THE DIFFERENCE IN THE DENSITIES OF PHOTOGRAPHIC LAYERS WHEN WET AND WHEN DRY. H. Zwicky (Typon A.G.). Z. Wiss. Phot. 50, 1955, 415-24; Ansco Abstracts 16, No. 3, March 1956, p. 116. Frequently changes in density can be observed during processing. The density of a developed coarse-grained emulsion when wet was 2.40, after drying 2.05. By repeated soaking and redrying the density could be varied reversibly between 1.95 and 2.05. One cause is the shrinkage of the grains consisting of coils of silver threads during drying, another may be the change in projection by a change of their position in the gelatin layer. The density variations are likely to be smaller in fine-grained emulsions with rounder silver grains.

THREE-COLOR PRINTING - DENSITOMETERS, SCREEN CALIBRATION. Stanley Goldsmith. American Printer & Lithographer 138, No. 4, April, 1957, pp. 52,59,60,61 (4 pages). A general treatment of the subject of densitometry, and how a densitometer can be used when making color separation negatives.

PHOTOGRAPHIC GRANULARITY AND GRAININESS - TECHNIQUES AND EQUIPMENT FOR THE OBJECTIVE MEASUREMENT OF GRAININESS. L. A. Jones, G. C. Higgins, K. F. Stultz, and H. F. Hoesterey. Journal of the Optical Society of America 47, No. 4, April, 1957,

pp. 312-320 (9 pages). A photoelectric scanning instrument is described which gives granularity values in terms that can be converted into the graininess values that would be obtained by an observer viewing a magnified image of the sample under standard conditions. The procedure is to determine the critical scanning aperture that results in a signal corresponding to the threshold-gradient sensitivity of the eye for the density of the sample. The techniques for making two types of routine graininess measurements are described in detail. Class I measurements give the graininess of samples at a density of 0.8. Class II measurements give granularity numbers that indicate the relative graininess to be expected of matched prints made from the negatives.

IMPORTANT CHARACTERISTICS OF COLOR PHOTOGRAPHIC MATERIALS. W. Lyle Brewer. Photographic Science and Technique Series II, Vol. 3, No. 4, November, 1956, pp. 134-137 (4 pages). Important characteristics of color photographic materials may be considered in terms of tone scale characteristics, color characteristics, definition, physical characteristics, and uniformity of product. Each of these characteristics is discussed as it applies to reversal films, negative films, prints from reversal films, and prints from negative films.

"MAKING TINT NEGATIVES WITH A CONTACT SCREEN." LTF - Research Progress #36. National Lithographer, 9/56.
The procedure for making tint negatives using a contact screen is described. Evenness is obtained with a two step method. First negative is processed in a softer working developer, and then contact printed to obtain desired dot hardness.

AUTOMATION IN COLOR PROCESSING. Donald C. Gresham. Gravure 3, No. 5, May, 1957, pp. 23-24 (2 pages). Automatic processing equipment for making color gravure screen positives by the McCorquodale-Gresham process is described. A machine that can handle a set of 4 14 x 17 plates is in operation. The processing solutions are pumped into and out of a tank holding the plates. A set of plates can be automatically processed in 30 minutes.

PLANOGRAPHIC PRINTING PROCESSES

PATRATECT TREATMENT WILL DOUBLE LIFE OF DAMPING ROLLER COVERS. Patra News 65, May, 1956, pp. 3-4 (2 pages). Following a laboratory examination into fungicides for preventing mould growth on damping roller covers, PATRA has found a chemical that will at least double the life of coverings. Treated coverings are now available commercially and are only slightly more expensive than the ordinary type.

GRAINING PLATES WITH A BRUSH. Joanne Heal. LTF - Research Progress #37. Graphic Arts Monthly, Feb. 1957. Modern Lithographer & Offset Printer, Nov. 1956. The research which led to a procedure for graining zinc and aluminum plates with a 7" rotary power brush is described and illustrated. Surface platemaking steps on such plates are also given.

HOW DO USERS LIKE PRESENSITIZED PLATES? New England Printer and Lithographer 19, No. 8, September, 1956, pp. 54-55 (2 pages). A survey on presensitized plates containing eighteen questions was sent to thirty-eight users. Twenty-four answers were obtained. The survey included questions on performance, ordering and handling and improvements desired. The results of this survey show that (1) Almost 1/3 of the users questioned now use presensitized plates exclusively, (2) They expect an average run of 25,000 per plate, (3) Users seldom have makeovers, (4) Most find them very consistent, (5) Press settings are more critical, (6) Time-saving, economy and better quality were given as reasons for using them, and (7) The biggest demand now is for longer runs.

*INK-RECEPTIVE RESINOUS FILMS. U. S. Patent 2,786,778 (Application Feb. 5, 1954). Philip V. Palmquist (Assigned to Minnesota Mining and Manufacturing Co.). Official Gazette 716, No. 4, March 26, 1957, p. 893. A thin flexible organic polymer film having a normally non-ink-receptive surface which has been rendered ink-receptive by brief contact with silicon monoxide in vapor form.

*DAMPENER FOR OFFSET LITHOGRAPHIC PRINTING. U. S. Patent 2,787,213 (Application Sept. 30, 1954). Bruce W. Hubbard (Assigned to Ideal Roller and Manufacturing Co.)

Official Gazette 717, No. 1, April 2, 1957, p. 63. An offset lithographic printing press having, in combination, a plate cylinder carrying a sensitized lithographic printing plate, and a dampener roll for said plate comprising a base, a resiliently yieldable covering thereon, and a thin sheet of vegetable parchment paper snugly wrapped around said covering and presenting a continuous water receptive outer surface contacting said printing plate.

PAPER AND INK

TEST METHODS FOR PRINTED FILM. Gravure 2, No. 12, December, 1956, pp. 28 (1 page). Every user of the printed package has his own particular set of tests. These tests can be classified under general headings: Light Resistance, Rub Resistance, Odor, Alkali Resistance, Soap Resistance, Water Resistance, Blocking Tests, Gloss, Color, Adhesion, Heat Resistance, Flexibility and Chemical Resistance. This article briefly describes methods for testing the above.

HOW TO COPE WITH PAPER VARIATIONS. Ronald I. Drake. Printing Monthly 8, No. 11, February, 1957, pp. 4, 5, 12 (3 pages). The author discusses some of the technical aspects of various types of paper variations and how to handle them. Paper troubles are divided into four broad classifications: (1) Printing quality (surface effect); (2) Strength (picking, splitting, tearing, folding, etc.); (3) Foreign material (dust, lint, part sheets, extraneous material); (4) Relative humidity effects (atmospheric - internal).

FOUNTAIN DOPE - IS LONG-GRAIN OR SHORT-GRAIN PAPER BETTER? WILL GRAIN DIRECTION MAKE A DIFFERENCE? - SOME HINTS ON SCORING. John D. Payne. New England Printer and Lithographer 19, No. 8, Sept. 1956, pp. 23-24 (2 pages). The grain direction of paper and its relationship to printing and folding is discussed. Usually there are greater advantages to printing litho papers grain long. In certain cases the advantages of running paper grain short are much greater. These are better pick resistance, less embossing, and better layout. Folding is done more easily with the grain but if proper scoring methods are used a stronger and better fold is acquired

across the grain. A scoring trick for a litho press using fishline is given.

STUDIES OF INK TRANSFER DURING PRINTING. Charles H. Borchers. LTF - Research Progress #37. Inland Printer, Sept. 1956. The LTF method of studying ink transfer using a modified LTF pick tester and oscilloscope is described. Typical data obtained is shown.

PAPER - Six Major Improvements for Offset in 25 Years. John L. Kronenberg. Modern Lithography 24, No. 12, December, 1956, pp. 36, 119 (2 pages). This article is from a talk at the NAPL convention in New York, September 20, 1956. Among the list of technical factors that have contributed to the improvement of quality and to the growth of lithography are better papers. Improvements in paper have led to: 1) Smoother, harder papers, 2) Pigmented offset papers, 3) Coated 2-side paper, 4) Greater use of coated paper through improved inks and press techniques, 5) Machine coated papers, and 6) Cast coated papers.

MOISTURE VAPOR TRANSFER STUDY RESULTS IN NEW THEORY. Barney Hilton. Package Engineering 2, No. 2, February 1957, pp. 28,29,30,32,33,34 (6 pages). The author presents a theory accounting for the transfer of moisture through a barrier which he breaks down into three basic stages, namely adsorption upon the incident surface, followed by diffusion through the barrier and finally by desorption to a drier atmosphere. The equations which he employs in his mathematics are based upon Langmuir's theory of adsorption, the Kinetic theory of gases, Fick's law of diffusion and Arrhenius' theory of the effect of temperature upon reaction rates. The author's result differs from previous theories in two main respects. First, he suggests that the water vapor concentration on the surface rather than the vapor pressure difference across the film is the driving force. Secondly, he says that the transfer depends more upon relative rather than upon absolute humidity. Finally, his theory indicates that the rate of transfer varies logarithmically with the vapor pressure rather than in a linear manner as was formerly most commonly indicated. So far polyethylene and 300 gauge cellophane have been checked and the work supports the theory.

ACRYLONITRILE IN STYRENATED ALKYD RESINS. J. C. Petropoulos, L. E. Cadwell and W. F. Hart. Industrial and Engineering Chemistry 49, No. 3, March 1957 - Part I, pp. 379-381 (3 pages). Styrenated alkyds have a prominent place in the coating resin field because of their fast drying qualities, high gloss, and excellent chemical resistance. Their use in certain applications, however, has been limited by low resistance to oils, greases, and hydrocarbon solvents. Therefore, acrylonitrile as a partial replacement for styrene was investigated. Interpolymers were prepared by allowing acrylonitrile and styrene or methylstyrene to react in different ratios with a linseed and with a double distilled tall oil fatty acid-modified glycerol phthalate alkyd resin. Increasing the proportion of acrylonitrile improved solvent resistance, drying rate, and resistance to chalking and bronzing in enamels during early stages of exterior exposure.

PLASTIC COATED PAPERS FOR THE PACKAGING INDUSTRY. Von Dr. Walter Schoch. Archives for Printing Paper and Kindred Trades, January 1957 #1, pp. 65,66,67,68, 69,70,71,72,75 (9 pages) German & English. This article deals only with those combinations of paper and plastics which serve packing and packaging purposes where full use is made of the advantages of paper as packaging material and of the advantages of plastic films as tight wrapping. In particular the manufacture of plastic coated papers is discussed. Two methods (1) Lamination of plastic films with paper (2) Application of plastic dispersion are covered. Since these processes are of particular importance to the plastic coated papers used in the packaging industry they are discussed in detail. Properties of the plastic coated papers, converting of the plastic coated papers, printing, seaming, and formation of gussets are discussed in detail.

LITHOGRAPHY GENERAL

PRINTING CONTROLS AT THE PRESS. Daniel Smith. Pacific Printer Publisher and Lithographer No. 4, April, 1957, pp. 19,20,22 (3 pages). By the time a printing job goes to press much effort has been expended to prepare for the run. While many

variables still remain to be controlled if the production is to be within the acceptable limits of the specification for the final desired result, the necessary compromises should have been made. Some understanding of the preparatory phases of the process and the compromises which may have been made before the start of the press run is essential to an evaluation of the control problem. The requirements for control are basically different and will be considered separately. Included are the following groupings: line copy, tone copy, lithography and letterpress, non-uniform film thickness, viscosity control, gravure, and register and tension. After the paper maker and the ink maker have prepared their products under rigid control, it remains for the press crew to control the union of these raw materials. To effect acceptable uniform printing, control must be maintained over 1) printing pressure, 2) printing viscosities, 3) colorant concentration, 4) film thickness, 5) water-ink balance, 6) colorant transfer, 7) trapping, and 8) register, for which purposes densitometers, viscometers, tensiometers, and register controls are available. But without careful visual examination under standard illumination, the instrumental methods are still not completely adequate for complete control of production from printing presses.

MECHANICAL AIDS IN OFFSET COPY PREPARATION. Ray M. Hogan. Modern Lithography 24, No. 12, December, 1956, pp. 30,31,32,33 (4 pages). The preparation of professional quality reproduction art by non-artist workers using pre-printed adhesive background tones, tints and screens, as well as pre-printed letters, lettering guides and small photo-typesetting machines are discussed.

RELIEF-TO-OFFSET CONVERSION. Eldon L. Thompson. Printing Magazine 80, No. 13, December, 1956, pp. 70-73 (4 pages). Since many publishers and commercial printers are becoming interested in web offset printing or sheet fed offset and since the majority of composition is done in metal type with publication printers dealing in electros, line engravings, or other relief plates, conversion methods have taken on much importance because of the need to produce planographic plates from relief

forms. During the past two years the Rochester Institute of Technology has been evaluating promising methods of conversion, and have developed the double-offset transfer method. This article reports on the quality, equipment, materials, and labor of the following conversion methods: 1) Brightype, 2) Translucent Proof, 3) Reproduction Proof, 4) Double-Offset Transfer, and 5) Direct Image Offset.

THE LTF THICKNESS GAUGE - For Printing Papers and Boards, Offset Blankets, Packing Sheets and Printing Plates. The American Pressman 67, No. 3, February, 1957, pp. 29,30,31 (3 pages). The sales and instruction material used by Federal Products Corp. regarding the LTF Blanket Thickness Gauge is reviewed and briefed in a three page article.

DAMPENING - Time, Money & Effort For The Most Difficult Control Factor. Charles W. Latham. American Printer & Lithographer 138, No. 4, April 1957, pp. 42,44,47,48 (4 pages). This article consists of a brief review of various dampening methods as a way of outlining the problem. This is followed by several pages of discussion of the design, maintenance and operation of the conventional dampening system.

GRAPHIC ARTS - GENERAL

HOW WORK SIMPLIFICATION PAYS OFF. Lillian Stemp. The Inland Printer 137, No. 6, pp. 50-51 (2 pages). Fetter Printing Co. gets good results by teaching employees work simplification methods. Efficient plant layout proves to be one of the most significant factors in saving time. Problem-solving, ease of communication, and new ideas are brought about by teamwork.

FLEXOGRAPHY — PRINTING ADOLESCENT WITH BIG FUTURE — Part I. Frank A. Hamel. The Inland Printer 139, No. 2, May 1957, pp. 74,75,92 (3 pages). A general article describing the flexographic process from its infancy to its current standing in the printing industry. Several references are listed for more complete articles concerned with specific phases of the process.

QUALITY - How You Can Measure It Accurately In Your Own Litho Plant. Donald Macaulay. Modern Lithography 24, No. 8, August 1956, pp. 52,53,54,119 (4 pages). A general discussion of quality control, including general definitions, statistical evaluation and control techniques, and some typical applications.

NCR — NO CARBON REQUIRED. Chemically Treated Paper Eliminates Carbon Paper on Business Forms. The National Lithographer 64, No. 4, April, 1957, pp. 60,62 (2 pages). A brief description of NCR (No carbon required) paper is given in this article. Three types of paper make up the NCR paper system, i.e., back coated, front and back coated, and front coated. Pressure applied to a back coated sheet releases a chemical that reacts with a front coated sheet to produce an intense blue image. As many as eight sharp copies can be produced when an electric typewriter is used. Business forms using NCR paper can be printed by letterpress or offset.

*RADIOACTIVE INK DEVELOPED. Nucleonics - March 1957, R12; Telescoping the Technical News 25, No. 1, March 26, 1957, p. 8. A new method of reproduction called electron printing, using low-energy radioisotopes mixed with ink, was patented last month by three LSU faculty members. A drawing made with the ink is exposed to a sensitized surface; no negative is needed. The number of copies is limited only by the life of the isotope, and the copy is said to have greater fidelity and subtlety than has been possible with photography.

FLEXOGRAPHIC, ROTOGRAVURE PRINTING ON PLASTIC FILMS - Part I. J. L. Roser. The Inland Printer 138, No. 3, December, 1956, p. 77 (1 page). A modern converter must have, of course, good equipment, a good source of supply for his films, a good working arrangement with one or more of our many ink companies, but most important he must have a well staffed control laboratory and a well staffed and equipped research laboratory. When a converter is running a job, throughout the entire job the control laboratory must be working with the pressroom, constantly checking such things as flexibility of films, alkali resistance, blocking or

sticking, odor (product may be contaminated), ink adhesion, grease and oil resistance, moisture vapor transmission, paraffin bleed, acid resistance, scuff resistance.

XEROGRAPHY. K. A. Metcalfe and R. J. Wright. Journal of the Oil and Colour Chemists' Association 39, No. 11, Nov. 1956, pp. 845-856 (12 pages). Xerography or electro-photography is an electronic photographic process, independent of the silver halides, with a significant future in radiography and the graphic arts. Plates and papers are coated with photo-conductive films of amorphous selenium or zinc oxide. The electrostatic images produced on these films are developed with dry powders or with colloidal suspensions in insulating liquids. The images may be transferred for permanent recording and the plates used repeatedly. The advantages of xerography include high resolving power, very rapid controlled development in any chosen color, and low cost.

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LITHOGRAPHIC ABSTRACTS - JULY, 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

THE SCANNER IN COLOR REPRODUCTION. Vincent C. Hall and Joseph G. Jordan. Pacific Printer Publisher and Lithographer No. 1, January 1957, pp. 19, 20, 22, 24, 26 (5 pages). The development of scanners and their present role are reviewed. Detailed comparison of the Crosfield electronic, and Time Life mechanical systems are made. Improvements based on seven years of practical operation are summarized.

*COLOR CORRECTION SELECTOR. U. S. Patent 2,790,844 - Application May 11, 1954. Hans E. J. Neugebauer - Assigned to Adalia LTD, Montreal, Quebec. Official Gazette 717, No. 5, April 30, 1957, pp. 1055. A color correction selector for obtaining color corrections for use in making printed reproductions of colored pictures comprising means for scanning a picture and generating tristimulus signals representing the color coordinates of the picture, means controlled by said tristimulus signals for producing a projected image of the picture on a surface simulating the surface on which the reproduction is to be printed, means for adjusting the values of the signals supplied to said means for producing an image to impart color corrections to said image and means for generating signals having values controlled by said adjustments, the last mentioned signals being adapted to be used to give color corrections for the final printed reproduction similar to said color corrections to the image.

CONSIDERATIONS ON PHOTOGRAPHIC ACUTANCE. H. F. Nitka. 1956 Photographic Engineering, Vol. 7, Nos. 3 & 4, pp. 190-195 (6 pages). It is suggested that acutance be determined at an exposure level which is a constant multiple of the toe speed of the photographic material under test, rather than to measure acutance at a constant density level. This procedure conforms with the practical experience of the visual evaluation of sharpness. The density distribution across a knife-edge exposure provides valuable information on the factors responsible for lack of acutance.

CONTACT SCREENS FOR HALFTONE (Part 2). Frank H. Smith. Modern Lithographer and Offset Printer LII, No. 11, November, 1956, pp. 15-16 (2 pages). The orange contact screen is described. The contrast of the halftones made with this screen can be varied by using filtered light for the exposure.

CONTACT SCREENS FOR HALFTONE (Part 3). Frank H. Smith. Modern Lithographer and Offset Printer LII, No. 12, December, 1956, pp. 15, 16, 18 (3 pages). The author describes how the halftone dot is formed behind the magenta contact screen. The relation of contrast of the halftone reproduction is described. The effects of filters on the contrast of the halftone negative is described.

CONTACT SCREENS FOR HALFTONE (Part 4). Frank H. Smith. Modern Lithographer and Offset Printer LIII, No. 1, January, 1957, pp. 11, 12, 13 (3 pages). Procedures for using the gray contact screen is described. The use of flash and highlighting exposures is described.

THREE-COLOR PRINTING - MASKS. Stanley Goldsmith. American Printer & Lithographer 138, No. 3, March, 1957, pp. 46, 48, 49, 51 & 54 (5 pages). A general description is given for making an exposing lamp for contact masks and separations. Filter and film recommendations are given for making contact masks from the transparency. Exposure and development data is also given.

MASKING IN THE GRAPHIC ARTS. Adam Henri Reiser. Printing Equipment Engineer 87, No. 7, April 1957, pp. 31, 32, 86, 87 (4 pages). Techniques of using opaque stencil type masks are detailed with no discussion of tone or color correcting masks. Goldenrod and black paper, aluminum foil, photographic line negative or positive images, and hardened resist masks for photoengraving and gravure are covered.

*PHOTO COMPOSING MACHINE. U. S. Patent 2,790,362 - Application August 23, 1947. Rene Higonnet and Louis Moyroud - Assigned to Graphic Arts Research Foundation, Inc. Official Gazette 717, No. 5, April 30, 1957, p. 939. In photographic type composing apparatus, the combination of a character carrier bearing the characters to be

photographed and corresponding impulse generating means, each in precise spatial relation to a particular character, a continuously rotating mechanism for moving the characters successively relative to a fixed projection position while moving each of the generating means successively over a single path relative to a fixed control position, whereby each character is precisely aligned in the projection position when its corresponding generating means is precisely aligned in the control position, an intermittent flash device in position to illuminate a character in the projection position, optical means to project an illuminated character upon a sensitive material, a responsive device in position for receiving an impulse from each and every generating means reaches the control position, selector means for determining a character to be projected, a circuit from an energizing source to the flash device, and a gating device including means operated in exact synchronism with the character carrier and controlled by the selector means to cause the impulse from the generating means corresponding to the selected character to activate said circuit.

PLANOGRAPHIC PRINTING PROCESSES

*METHOD OF PREPARING A LITHOGRAPHIC PRINTING PLATE. U. S. Patent 2,794,388 - Application Oct. 25, 1955. Orson Warren Lake and Charles F. Amering - Assigned to Eastman Kodak Co. Official Gazette 719, No. 1, June 4, 1957, p. 57. The method of preparing a lithographic printing plate having good lithographic ink receptivity and durability, which comprises forming by exposure and development in a gelatino-silver halide emulsion layer of unhardened gelatin, a hardened gelatin image, transferring the unhardened gelatin portions of said emulsion layer to a lithographic printing plate which will repel greasy printing inks when wet with water, wetting the surface of the printing plate and the transferred gelatin image with a solution containing approximately 4% to 10% tannic acid and approximately 4% to 5% thiourea, and then wetting the surface of the printing plate with water and placing it on an offset printing press.

*LITHOGRAPHIC PRINTING PLATE. U. S. Patent 2,732,732. C. H. Van Dusen, Jr. (Assigned to Addressograph-Multigraph Corp.). Chem. Abstr. Vol. 50, no. 8, 25 Apr. 1956, col. 5438; Printing Abstracts 11, No. 7, July, 1956, p. 431. A grained metallic base of aluminum or zinc is treated with an alkali silicate prior to the preparation of an albumin lithographic printing plate. In a typical example, a solution of Na_2O 8.9, silica 28.7, and water 714.4 parts by wt. was applied to a grained aluminum foil, air-dried, coated with photo-sensitive albumin, developed, inked, and run on a press in a conventional manner. The plate showed no tendency to scum or tone during use.

PAPER AND INK

PAPER CONTROLS IN THE GRAPHIC ARTS. John L. Kronenberg. Pacific Printer Publisher and Lithographer No. 3, March 1957, pp. 22, 23, 25, 26 (4 pages). This article briefly describes the papermaking process. The effect of fiber, fiber treatment, fillers, coatings, pigments and adhesives on smoothness, strength, ink receptivity, and brightness.

MEASUREMENT OF THE MOISTURE CONTENT OF PAPER. G. Blokhuis. IGT Nieuws, vol. 9, No. 6, June 1956, p. 91 (In Dutch); Printing Abstracts 11, No. 11, November, 1956, p. 686. The possibility that water-vapour may enter a pile of paper when a sword hygrometer is inserted and so influence the result is discussed and refuted.

THE USE OF WHITE PIGMENTS TO OBTAIN BRIGHTNESS IN PAPER. Raymond I. Bashford, Jr. TAPPI 40, No. 1, January 1957, pp. 154A, 155A, 156A (3 pages). The brightness requirements placed on papers necessitate the use of bleaching or high brightness fillers to meet the brightness specification. Because of the normally wide variations in the human eye, brightness instruments have been designed which specify the wavelengths of the light to be used in the instrument and the angle at which the sample is tested. The brightness of paper and paperboard is affected by: (1) the amount of beating that the pulp receives, (2) the amount of calendering the paper is given, (3) the kind and amount of additives that are used such as alum, rosin, starch, and

so forth, as well as (4) the kind and amount of fillers that are used in manufacturing the paper. High refractive index pigments such as titanium dioxide and zinc sulphide are more effective toward increasing brightness in paper than are the common fillers such as clay, calcium carbonate, and so forth. The use of white or fluorescent dyes improve the visual brightness of paper, but these dyes have little effect on the physical brightness as measured by a brightness tester. Waxed brightness gives some measure of the effectiveness of various types of fillers when used to impart printing contrast and showthrough resistance to paper.

INKS OF TODAY AND TOMORROW. Dr. Maurice Adler. Share Your Knowledge Review 38, No. 2, November 1956, pp. 35-38 (4 pages). A brief history of printing ink is given and the inks most commonly used today are described. Progress in the future is expected to yield ink drying by induction, improved litho gold ink, improved daylight fluorescent inks, better three color inks. Mention is made of a new printing process called the "Complete Transfer Method" in which a hot plate carrying ink transfers all of it to the paper.

LITHOGRAPHY - GENERAL

WHEN SHOULD PROCESS-COLOR WORK BE PUT ON A WEB-FED OFFSET PRESS? Reginald F. Wardley. The Graphic Arts Monthly 29, No. 4, April 1957, pp. 66, 68, 70, 72, 140, 142, 144 (7 pages). Several factors control the answer to this question. They are as follows: 1. Is printing to appear on both sides of the sheet? 2. Is suitable offset equipment available? 3. Is the press run long enough? 4. Are paper, ink, and press operators on hand to produce process color work on a web-offset press? 5. Comparison of sheet-fed and web-fed presses for process color work. 6. Press flexibility. 7. Makeready requirements. 8. Paper requirements. 9. Quality. 10. Register. 11. Halftone dot formation. Each section is discussed in detail and its relation to the question.

DEVELOPMENTS IN WEB OFFSET PRINTING. George R. Brodie. Share Your Knowledge Review 38, No. 9, June, 1957, pp. 15-18 (4 pages). The author outlines the advantages of the web offset press which account for its having largely displaced letterpress in Europe. The sheetfed press cannot be entirely displaced because of its versatility as to size. For reduced cost, due to the web presses ability to print two sides at one pass as well as to include further processing such as sheeting, folded signatures, die cutting, etc., the choice of standardization with respect to size is suggested. Even greater cost reduction is possible for color work. Brodie cites as an example the McCall Corp. at Dayton, Ohio. In one twenty-three hour period thirty-eight different four color forms produced 123,000 impressions or 246,000 envelopes. Average makeready time was a little over twelve minutes. Each job was from three to four thousand impressions and 152 different plates were used. The same paper, inks and plate sizes were used on all these jobs. Some interesting comments on additional advantages of web offset over letterpress given by the author of this article are that the offset ink film is much easier to dry, that it is easier to keep the second side impression top sheet clean, and that on the whole the web seems to run truer. The remainder of the article deals with the details of the presses, such as the large common impression cylinder, the soft packed blanket cylinder, and the other modern design features. Of special interest is the Aller flap rollers used in place of the conventional water ductor, and the Levey brush inker used in place of a conventional ductor roll. Brodie states that with mechanized devices to clean blankets on the run, as many as ten to fifteen rolls of paper may be run without stopping to wash the blankets or for any other reason. A major switch to web offset is predicted.

OFFSET PRESS WITH 5 COLOR UNITS AND SINGLE IMPRESSION CYLINDER. The American Pressman 67, No. 5, April, 1957, pp. 44-45 (2 pages). High-speed offset presses for printing both sides of a full web have recently been employed for commercial work. A new design for a 72" plate width and a maximum speed of over 24,000 plate cylinder revolutions per hour is described in some detail. Various paper thicknesses

and various thicknesses of surface plates can be used. Push button control permits manual or automatic sequence control of throw-off for the pressure, ink and dampeners. The water fountain supply is common to the two top and the three lower fountains, being pumped from a 100 gal. tank. The ductor roller is nylon bristle brush covered and runs in continuous contact with the fountain roller. The form rollers run from 6 to 7" diameter. The roller sockets permit two way independent adjustment. The vibrators may be individually silenced or adjusted for up to 1 and 1/4 inch stroke.

BLANKET TO BLANKET PRINTING - DOING AN OUTSTANDING JOB! Hyman Safran. Graphic Arts Monthly 29, No. 5, May, 1957, pp. 68, 70, 72, 130 (4 pages). A general survey of web-offset perfector presses and their role over the past twenty years. According to the author the blanket to blanket process can be categorized as "economical," "speedy," "dependable," and "versatile."

*LITHOGRAPHIC PRINTS ON FABRICS. E. Trepka. Zesz. Nauk. Politech. Lodz, no. 6 (Chemia 2), 1955, pp. 53-8; J. Soc. Dyers Colourists, vol. 72, no. 4, Apr. 1956, p. 190; Printing Abstracts 11, No. 7, July, 1956, p. 441. Various methods of printing on textile fabrics are discussed. The advantages of lithographic printing, if it could be applied to textiles, are enumerated. The line of approach in intended research on the problem is outlined.

QUALITY CONTROL THROUGH GOOD REGISTER. Charles W. Latham. American Printer and Lithographer 138, No. 3, March, 1957, pp. 38, 40, 42, 59 (4 pages). A discussion of register and the proper use of front guides, side guides, tumbler grippers, insertion devices and grippers.

QUALITY CONTROL. Charles M. Henderson. The Graphic Arts Monthly 29, No. 4, April 1957, pp. 10, 12, 14, 16, 18, 20, 22 (7 pages). A general discussion of the quality control program at the Consolidated Lithographing Corporation. The cost, programming and benefits of quality control are described.

COLOR PROBLEMS IN THE PRESSROOM - Part I and II. Gordon H. Dalsemer. Pacific Printer Publisher & Lithographer - February, 1957, pp. 17-18 (2 pages), March, 1957, pp. 15, 16, 18 (3 pages). Color problems in the pressroom stem from variables caused by materials, machines, lighting and men - both customers and pressmen. Whiteness of paper, dry back of inks and viewing conditions are discussed.

STATIC AND THE IONOTRON. The American Pressman 67, No. 5, April, 1957, p. 9 (1 page). The Ionotron device for eliminating troublesome static electrical charges by radioactively ionizing the air is described. These units are not stock items but are preferably designed to suit the application. In some instances polonium rather than radium is used in order to insure the safety feature which is stressed. When this is done, the element may have a useful life of about twelve months rather than of centuries as is the case of the radium Ionotrons.

GRAPHIC ARTS - GENERAL

A PREFACE TO THE COLOR PROBLEM (PART I); (PART II). Dr. Marvin Rogers. Pacific Printer Publisher & Lithographer No. 1, January 1957, pp. 14, 16, 17, & 18 (4 pages), February 1957, pp. 16-17 (2 pages). The Inter-Industry Color Council's symposium on "Color Problems in the Graphic Arts" is keynoted by Dr. Rogers with basic descriptions of problem differences in major printing processes. Halftone and intaglio systems for tone reproduction are discussed as well as duplicating plate procedure. Additional color problems mentioned are color viewing lights, uniformity and ink drying.

USE OF COLOR SYSTEMS IN THE GRAPHIC ARTS. Carl E. Foss. Pacific Printer Publisher and Lithographer No. 3, March, 1957, pp. 18, 20 (2 pages). Brief discussion of the nature of color space, the color gamut of inks, and color information systems.

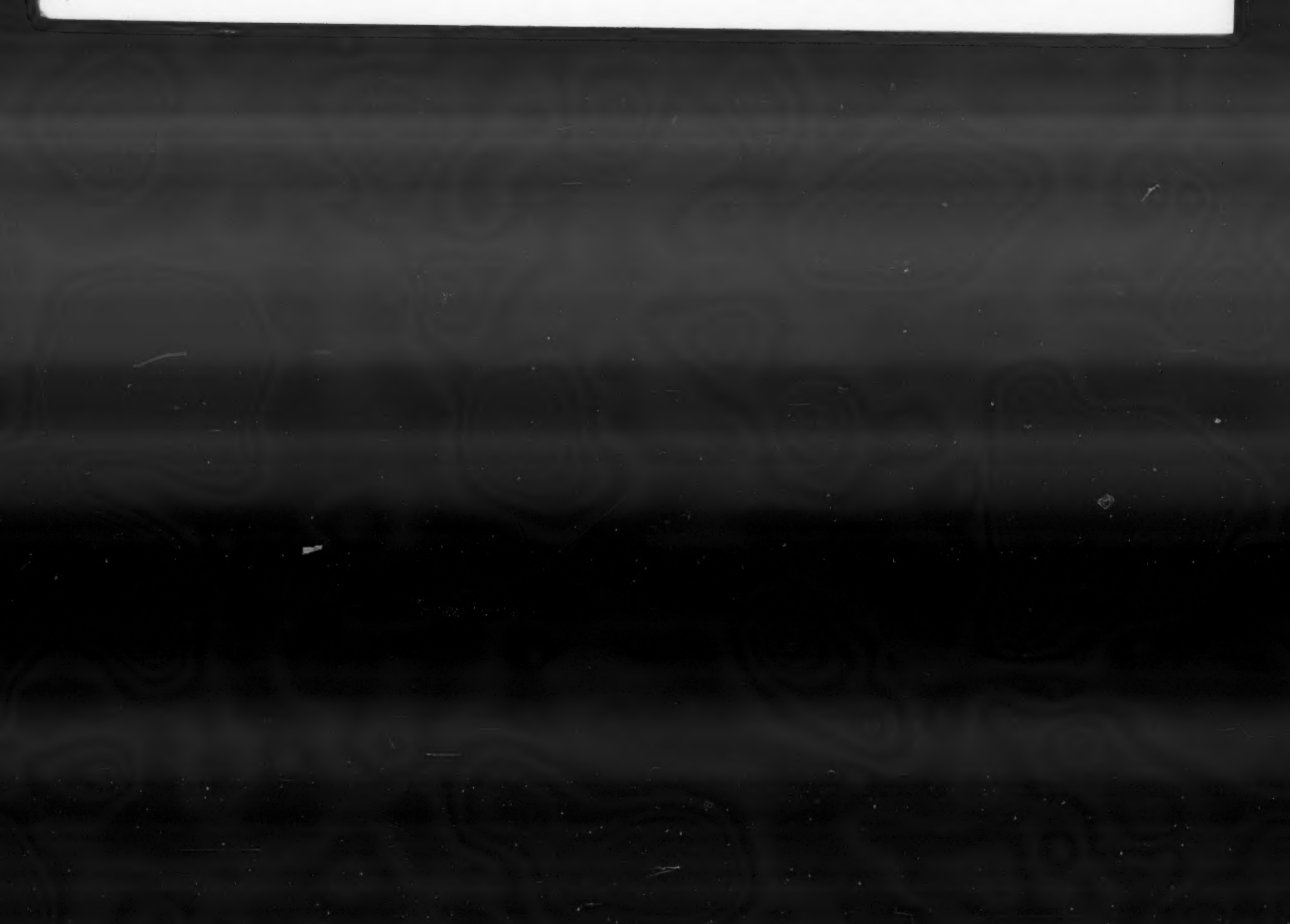
CONTROL IN OFFSET LITHOGRAPHY. Michael Bruno. Modern Lithographer and Offset Printer 53, No. 2, February, 1957, pp. 18-19 (2 pages). Briefed report of address

given before Metal Decorating convention, October, 1956. Excellent quality is now possible from lithography. LTF's present efforts are now directed toward getting this quality consistently. Instruments now available to help were mentioned. Results from LTF's Color Survey were summarized.

THE FUTURE OF TINPLATE. Dr. W. E. Hoare. The National Lithographer 64, No. 2, Feb. 1957, pp. 45, 114 (2 pages). The future of tinplate seems to lie in three broad possibilities: (1) relatively fast rate of expansion for production and consumption; (2) development of tinless containers; (3) new methods of preservation and storage that may lead to the elimination of the metal container altogether. This article discusses (1) in terms of expansion of the electrolytic process, added lacquer coatings and the amount of tin consumed in tinplate.

XEROGRAPHY AND THE IBM ELECTROSTATIC PRINTERS. W. D. Bolton and W. E. Goetz. Photographic Engineering 7, Nos. 3 & 4, pp. 137-146 (10 pages). The IBM 938 Electrostatic Card Printer and the IBM 939 Electrostatic Address Label Printer are automatic business machines utilizing the xerographic process. These printers reproduce printed data from IBM master cards onto secondary cards or onto mailing labels. A detailed description of the machine is presented. In particular the newly engineered features not present in the standard process are discussed. These include fur brush development, infrared fixing, and conductive roll transfer. Also described are the special optical systems and illumination requirements, including several uses of light peculiar to the requirements of these machines.

INDUSTRIAL DERMATITIS. J. S. Stewart. Journal of the Oil and Colour Chemists' Association 39, No. 10, October 1956, pp. 756-763 (8 pages). A rather detailed description of the nature of the skin and its protective functions and causes of dermatitis. Preventive measures to be taken on the job include: selection of men, ventilation, protective clothing, use of barrier creams, facilities for cleaning the skin, and education of workmen.



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LITHOGRAPHIC ABSTRACTS - SEPTEMBER 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

A METHOD OF COPYBOARD ILLUMINATION. C. W. Whitaker. The British Journal of Photography 104, No. 5047, Feb. 8, 1957, p. 73. Details are given for constructing a camera lighting system. Overloaded filament bulbs are controlled more efficiently by wiring three 1,000 watt, 100 volt bulb in series on 200 volt for focusing, and short circuiting the center bulb for high efficiency. This avoids the current break of series parallel switching.

IS MASKING A CURE-ALL? Zoltan I. Poharnok. Modern Lithography 25, No. 2, February 1957, pp. 30, 31 (2 pages). Skilled labor shortages of World War II and impossibility of teaching guessing to apprentice artists are given as reasons for wide interest in use of masking color correction methods. The author considers that masking cannot be standardized or mechanical; it must be personally controlled by skills of intelligent operators.

THE GUIDE IN MASKING. Zoltan I. Poharnok. Modern Lithography 25, No. 3, March 1957, pp. 34-35 (2 pages). Common end densities and mask percentages are given; and deficiencies of deficient non-linear masks are detailed. Some colors are said to require handwork because photographically produced masks are considered to be not detail selective.

THE GUIDE IN MASKING. Zoltan I. Poharnok. Modern Lithography 25, No. 4, April 1957, pp. 48-49 (2 pages). Densitometric measurements with four filters are suggested for analysis of process inks. Knowledge of dot spread change of 50% tint also helps the color corrector. Poharnok considers that when copy and ink colors are properly studied color corrective masks are seldom needed as his separations only need minutes of hand correction.

THE DYSTRIP PROCESS. Otto C. Stoessel, Jr. The National Lithographer 63, No. 9, Sept. 1956, pp. 28, 29, 30, 31 (4 pages). Complete working instructions are given for making negatives or positives with Ulano Dystrip sheets. This is a strippable carbon

tissue type of material coated on rubberized vinyl. The alcohol dichromate sensitizer permits drying in 3 to 5 minutes. Manufacturer is Ulano Products Co., 610 Dean Street, Brooklyn, New York.

THEORY AND PRACTICE OF HALFTONE PHOTOGRAPHY. John Pince. The National Lithographer 63, No. 9, September 1956, pp. 10, 12, 14 (3 pages). The halftone process is explained by the penumbra and diffraction theory.

*REPRODUCTION WITH LOCALIZED CORRECTIONS. U. S. Patent 2,799,722 - Application April 26, 1954. Hans E. J. Neugebauer - Assigned to Adalia LTD. Official Gazette 720, No. 3, July 16, 1957, p. 623. An apparatus for making corrected color separations for use in making reproductions of a colored picture with color corrections for at least one sectional area of the picture differing from the overall color corrections, comprising means for scanning the picture and generating electric tristimulus signals corresponding to the tristimulus values of the picture, means for scanning a mask having areas with a transmission ratio differing from the transmission ratio of the remainder of the mask in synchronism with the scanning of the picture, said areas of the mask corresponding to the portions of the picture which are to have color corrections differing from the overall color corrections, means for generating signals corresponding to the transmission ratio of the portion of the mask being scanned, recording means for recording corrected color separations computing means for generating input signals for the recording means having over-all corrections, precomputing means for generating additionally corrected signals for said sectional area, switching means controlled by said signals corresponding to the transmission ratio of the portion of the mask being scanned for by-passing said precomputing means and directing the tristimulus signals to the recording means through the computing means when areas of the picture other than said at least one sectional area are being scanned and for directing the tristimulus signals to the recording means through the precomputing means and the computing means when said at least one sectional area is being scanned.

"DO IT YOURSELF" - COLOR SEPARATIONS - Part I. James M. Nolan. The National Lithographer 64, No. 1, January 1957, pp. 8, 9, 10, 12 (4 pages). Part I introduces the objective of a defined method of achieving 90% color faithfulness by lithographers inexperienced in process work. Points covered are: 1. Equipment and materials needed, 2. Color separations and art work.

"DO IT YOURSELF" - COLOR SEPARATIONS - Part II. James M. Nolan. The National Lithographer 64, No. 2, February 1957, pp. 10, 11, 12 (3 pages). 11 x 14 glass separation plates are used for all work. Standard tray developing is described. A color separation record sheet is illustrated.

"DO IT YOURSELF" - COLOR SEPARATIONS - Part III. James M. Nolan. The National Lithographer 64, No. 3, March 1957, pp. 16, 18 (2 pages). Reading and means of controlling end densities are described.

"DO IT YOURSELF" - COLOR SEPARATIONS - Part IV. James M. Nolan. The National Lithographer 64, No. 4, April 1957, pp. 12, 14, 16 (3 pages). Transparency separation is introduced and drawing shown of an adapter for cameras with tilting copyboards. Newton rings are avoided by mounting the color transparency on a fixed out dry plate.

"DO IT YOURSELF" - COLOR SEPARATIONS - Part V. James M. Nolan. The National Lithographer 64, No. 5, May 1957, pp. 12, 14 (2 pages). Details are given on mounting a color transparency with a gray scale, color guides, register marks, etc. While broad band filters are recommended for reflected art copy, narrow band filters are suggested for color transparencies. Exposure and development should give same densities and ranges as reflected copy. No transparency masks are used so color correction for reflected copy or transparency copy will be treated alike by masking the separations.

PLANOGRAPHIC PRINTING PROCESSES

*PHOTOPOLYMERIZATION. U. S. Patent 2,760,863 - 12/19/52 - 8/28/56. L. Plambeck, Jr. - To du Pont. Ansco Abstracts 16, No. 10, October 1956, p. 483. The sensitive layer, 3-250 mils thick, consists of an ethylenically unsaturated polymerizable

compound having a terminal $-C=CH_2$ group, e.g. a vinyl chloride/allyl glycidyl ether copolymer, Vinylite VMCH, or an alkyd resin preferably with a crosslinking polymerizable material such as polyethylene glycol dimdthacrylate, and a small amount of a polymerization initiator, e.g. benzoin or 1, 1'-azodicyclohenanecarbonitrile. Thermoplastic foils are the preferred support where weight is critical, otherwise metal sheets. A subbing layer, of which examples are given, is applied which may contain an antihalation dye or pigment. Exposures of 7 - 25' to mercury arc lamps are mentioned. The relief images are developed using organic solvents.

*METHOD AND COMPOSITION FOR COATING ALUMINIUM SURFACES. British Patent 747,957. American Chemical Paint Co. Tin-Printer & Box Maker 32, No. 379, August 1956, p. 8. An aqueous coating solution suitable for the treatment of aluminium surfaces comprises in solution, as its essential coating-producing ingredients, a hexavalent chromium, a soluble fluorine-bearing compound, and boron in an amount greater than the quantity required to form fluoboric acid by reaction with all of the fluorine present.

*METHOD OF PREPARING DIAZO PHOTOLITHOGRAPHIC PLATES. U. S. Patent 2,701,242. W. Neugebauer, et al - Assigned to Azoplate Corp. Print. Equipm. Engr. vol. 85, no. 8, May 1955, p. 44; Printing Abstracts 11, No. 2, February 1956, p. 100. Lithographic plates which have been produced from light-sensitive materials, after exposure behind a master, are treated with a water-soluble azo solution which will react to form a hydrophilic azo dye which does not accept greasy ink and avoids scumming.

*LIGHT-SENSITIVE PHOTOGRAPHIC ELEMENT AND PROCESS OF PRODUCING PRINTING PLATES. U. S. Patent 2,701,243. M. P. Schmidt - Assigned to Azoplate Corp. Print. Equipm. Engr., vol. 85, no. 8, May 1955, p. 45; Printing Abstracts 11, No. 2, February 1956, p. 100. Planographic, relief or intaglio plates having bases of metal, glass or stone, are coated with a stable light-sensitive layer so that the material may be supplied commercially in the form of pre-sensitized plates. The light-sensitive layer may be the condensation product of 2 mols of 2-diazo naphthol-(1)-5 sulpho-chloride with 1 mol of metol.

*LIGHT-SENSITIVE POLYMERS OF VINYL-SUBSTITUTED BENZYLIDENEACETOPHENONES. U. S. Patent 2,716,097. C. C. Unruh and C. F. H. Allen - Assigned to Eastman Kodak Co. Chem. Abstr., Vol. 49, No. 22, 25 Nov. 1955, col. 15581; Printing Abstracts 11, No. 2, February, 1956, p. 102. Polymers of vinyl-substituted benzylideneacetophenones having few cross-links and increased light sensitivity are prepared by condensing a polymer of copolymer of a compound having the general formula CH_2:CHYCOCH$_3$, where Y is an aryl group of the benzene or naphthalene series with a nuclear-substituted BzH or naphthaldehyde. Trimethylbenzylammonium hydroxide and sulphuric acid are used as condensation catalysts. Thus, polyvinyl-acetophenone (1) was prepared by adding 118 g. acetyl chloride to a mixture of 268 g. anhydrous aluminum chloride and 11. carbon disulphide, followed by a 104 g. of polystyrene in 11. of carbon disulphide. After 1.75 hr. the polymer was removed by filtration to give 143 g. I. I was condensed with p-isopropyl-benzaldehyde (II) by dissolving 5 g. I in 90 g. II and adding 5 g. of a 10% solution of concentrated sulphuric acid in II. After 18 hr. at 75°F., the solution was poured into methyl alcohol to precipitate 6.5 g. of product. I was also condensed with anisaldehyde (III), veratraldehyde, p-hydroxy-benzaldehyde, p-dimethylamino-benzaldehyde, o-chlorobenzaldehyde, p-acetamido-benzaldehyde, sodium O-sulpho-benzaldehyde, and a mixture of III and BzH. Vinyl-acetophenone (IV) was copolymerized with isobutylene in the presence of aluminum chloride and the resulting polymer condensed with III. IV was copolymerized with styrene and the polymer condensed with III. These polymers are useful for photo-mechanical purposes where a resist image is desired. U. S. Pat. 2,716,103. Condensation of I with BzH is claimed. (Cf. following abstract.)

*LIGHT-SENSITIVE VINYL-SUBSTITUTED CINNAMYLIDENEACETOPHENONE POLYMERS. U. S. Patent 2,716,102. C. C. Unruh and C. F. H. Allen - Assigned to Eastman Kodak Co. Chem. Abstr., vol. 49, no. 22, 25 Nov. 1955, col. 15581; Printing Abstracts 11, No. 2, February 1956, p. 102-103. Vinyl-substituted cinnamylideneacetophenones having a few cross-links and increased light sensitivity are prepared by condensing a

polymer of copolymer of a compound having the general formula CH_2:CHYCOCH$_3$, where Y is an aryl group of the benzene series, with cinnamaldehyde (I) or a substituted I. Sulphuric acid and trimethylbenzylammonium hydroxide are used as condensation catalysts. Thus, polyvinylacetophenone (II) was condensed with I by dissolving 10 g. II in a mixture of 220 c.c. glacial acetic acid and 30 g. I. To the solution was added 10 g. of a 10% solution of concentrated sulphuric acid in acetic acid. After 5 hr at room temperature the solution was poured into ethyl alcohol to precipitate the product. The extent of substitution was 8.9 mole o/o. Also condensed with II were a mixture of I and BzH, p-methoxycinnamaldehyde, or α amylcinnamaldehyde. An acetylated copolymer of styrene and isobutylene, partially acetylated polystyrene, and a copolymer of vinylacetophenone and isobutylene were condensed with I. These polymers are useful for photomechanical purposes where a resist image is desired. (Cf. preceding abstract)

*POSITIVE DIAZOTYPE PRINTING PLATES. U. S. Patent 2,772,972 - Application: Aug. 20, 1954. Clifford E. Herrick, Jr., Peter T. Woitach, Jr. and Edward J. Trojnar - Assigned to General Aniline & Film Company. Official Gazette 713, No. 1, December 4, 1956, p. 150. A plate capable of conversion to an offset printing plate comprising a base, a hydrophobic layer on said base comprising essentially a copolymer of vinyl methyl ether and maleic anhydride on said base and an overcoating on said hydrophobic layer of a water-insoluble, alkali-resistant adhesive resin and a light-sensitive, water-insoluble diazo oxide which is soluble in a solvent selected from the class consisting of liquid aliphatic esters, aliphatic ketones and aliphatic alcohols.

PAPER AND INK

PAPER CONDITIONING. J. D. Lynch. TAPPI 40, No. 2, February 1957, pp. 76, 77, 78, 79 (4 pages). Conditioning of paper in the paper mill has become more and more an important consideration as the demand for better grades of paper or board has increased. Reasons for conditioning of the sheet itself as well as the means for doing so are discussed, and the problems involving the conditioning of various

portions of the mill are touched on. The operation of the cycle conditioner is explained. This is a machine to add any desired amount of moisture to the paper in the web form uniformly at high speed.

ARE SYNTHETIC-FIBER PAPERS AROUND THE CORNER? John R. Emery and Peter R. Lantos. Paper, Film and Foil Converter 31, No. 5, May 1957, pp. 32, 33, 42 (3 pages). This article gives general details as to developments and uses of these synthetic-fibers and their practical and economic values to the industry.

SPECKS IN PRINTS. Modern Lithography 25, No. 3, March, 1957, pp. 46, 47, 48, 143 (4 pages). Specks in prints result from a variety of causes, and in order to eliminate or minimize specks, it is necessary to trace their causes. It is doubtful that all potential causes of specks can be described, because unusual circumstances can develop on occasion. However, the ordinary causes of specks in prints are classifiable thus: (1) Pits in paper or plates, (2) Lumps on paper or plates, (3) Pick, (4) Loose surface dirt, (5) Spray. This article goes on to describe each of the five ordinary causes of spots. A number of photomicrographs are shown.

HOW OFFSET PAPERS ARE MADE. Joseph H. Magruder. Offset Duplicator Review 7, No. 5, May 1957, pp. 12 thru 15, 62 thru 65 (8 pages). This article gives a concise description of how offset papers are made. The steps described are (1) pulping process, (2) blending and refining, (3) the paper machine, (4) auxiliary operations and (5) sheeting of paper. Part II of this article will cover characteristics of paper, grades and uses of offset papers and where to buy offset papers.

PATRA RUBPROOFNESS TESTER NOW IN COMMERCIAL PRODUCTION. Patra News - Printing Division, No. 78, June 1957, pp. 1, 3 (2 pages). A production version of the print rubproofness tester has been constructed by a firm of instrument makers in conjunction with PATRA. Operating on the Schiefer principle of two rotating discs in contact, the instrument can give a quick assessment of the rubproofness of any given material. Its main application is in assessing the rubproofness of prints.

*ACCURATE MEASUREMENTS OF PAPER THICKNESS. G. H. Hellenberg. Papierwereld, vol. 9, no. 12, July 1955, pp. 307-9 (In Dutch); Printing Abstracts 10, No. 11, November 1955, pp. 666-667. Thickness determinations were made on four types of paper by means of two Schopper instruments and an electro-magnetic apparatus. The electro-magnetic apparatus, working without any pressure, gives a more exact measure of paper thickness than the Schopper apparatus does. (This instrument measures at a pressure of about 14 p.s.i. (1 kg./sq.cm.).) When calculating the thickness of a book, based on the thickness of a single sheet of paper, the electro-magnetic method gives accurate results, whereas the values of the Schopper instruments were too low.

*PRINTING INKS. F. J. M. Wijnekus. Verfkronick, vol. 29, no. 2, 1956, pp. 48-9; Rev. Curr. Lit. Paint Col. Varn., vol. 29, no. 170, Mar.-Apr. 1956, p. 177; Printing Abstracts 11, no. 10, October 1956, p. 619. The effect of the rheology of the ink on pick-up by paper, and the effect of the pH and wetting agents in the water, and the acid value of the ink, on the water-absorption of offset inks, are discussed.

LITHOGRAPHY - GENERAL

QUALITY CONTROL - IN THE PRESSROOM. Charles W. Latham. American Printer & Lithographer 138, No. 1, January 1957, pp. 17, 32, 34, (3 pages). Lack of control in the pressroom can nullify all the effort that has gone into the other steps of producing a job. The quality of the job may be lost here or efficiency can be so low as to make the job unprofitable. Just as the proof of the pudding is in the eating, the proof of a well controlled job is in what comes off the press. The press, of course, can only print what is on the plate, but the way it prints it is of utmost importance. As explained in an earlier article, the condition and adjustment of the printing unit has much to do with the quality of the print. Of equal importance is the condition and adjustment of the inking system. In particular the ink fountain, the ductor roller, the vibrating rollers, other soft rollers, form rollers, and the washup are discussed in much detail.

QUALITY CONTROL - IN THE PRESSROOM. Charles W. Latham. American Printer and Lithographer 138, No. 2, February 1957, pp. 34, 37, 42, 44 (4 pages). This article discusses factors which aid in maintaining high quality lithography as well as those causing detrimental effects.

*MATERIAL APPLICATOR FOR ROTARY PRINTING OR DUPLICATING MACHINES. U. S. Patent 2,798,426 - Application July 15, 1955. E. J. Janke and D. B. Brewster - Assigned to Addressograph-Multigraph, Inc. Official Gazette 720, No. 2, July 9, 1957, p. 285. A material applicator for a printing machine having a rotary printing drum carrying a master planographic printing plate on its periphery, said applicator including a pair of spaced frame members, a trough extending between said frame members, a stationary yielding absorbent block in the trough having a flat face adapted to be charged with an ink repellent solution, a transfer member mounted for movement between said absorbent block and the master printing plate on the drum, said transfer member having a pair of comparatively flat absorbent surfaces, resilient means normally acting to present one of said flat surfaces to said absorbent block substantially throughout the length of the transfer member, manually operable means to move said transfer member from contact with the stationary block into contact with the printing plate, and means responsive to said movement to cause said last-named flat surface to move into position to engage the surface of the printing plate and to retain said surface stationary as long as it is in contact with the plate.

*MOISTENING MECHANISM FOR OFFSET DUPLICATING MACHINES. U. S. Patent 2,721,515. V. Milenkovic - Assigned to Ditto, Inc. Off. Gaz. 699, No. 4, 25 Oct. 1955, p. 602; Printing Abstracts 11, No. 2, February 1956, p. 87. A planographic plate dampening device comprises a moisture form roller mounted for intermittent rolling contact with a plate, a rider roller, mounted for normally continuous rolling contact with the moisture form roll, a moisture fountain, a fountain roll having portions in relief spaced about the periphery thereof and being of different lengths measured axially of the roll, means for continuously rotating the fountain roller, a ductor roller

mounted for swinging movement between the fountain roller and the rider roller, means for selectively adjusting the fountain roller circumferentially with respect to its drive so that a predetermined selected portion of its periphery is presented to the ductor roller during the cycle, and compound cam means adapted to maintain the ductor roller in rolling contact with the fountain roller for a selected period of time during any one cycle of operation so that the ductor roller is in rolling contact with a selected segment of the portions in relief on the fountain roller.

*INKING AND DAMPENING MEANS FOR OFFSET PRESSES. U. S. Patent 2,798,425 - Application March 19, 1954. Harvey F. George and William Ward Davidson (Assigned to Davidson Corp.). Official Gazette 720, No. 2, July 9, 1957, p. 284. In a systems printing machine, a housing, a printing plate member movably mounted in said housing, drive means for moving said plate member through a printing cycle said housing including a feed table adjacent said plate member, means disposed in said housing remotely of said feed table for applying fluid to said plate member, said means including a fountain, a fountain roll at least partly immersed in said fountain, a form roll, a control instrumentality accommodating engagement of said form roll with said plate member and operable to move said form roll away from said plate member, a drive connection between said plate member and said fountain roll for imparting a controlled degree of rotation to said fountain roll during each cycle of movement of said plate member and a second control instrumentality interposed between said drive connection and said fountain roll for varying the degree of rotation imparted to said fountain roll during each cycle of movement of said plate member, a pair of control levers movably mounted on said housing and projecting to the exterior of said housing adjacent said feed table and independent linkage connections between one of said control instrumentalities and one of said control levers and between the other of said control instrumentalities and the other of said control levers, whereby the amount of fluid to be applied to said plate member may be adjusted directly from the feed table by adjustment of one lever, and whereby the fluid applying means may be

turned off and on directly from the feed table by movement of the other lever irrespective of the adjustment of the one lever and without interfering with the adjustment of the one lever.

*PLATE DAMPENING MEANS. U. S. Patent 2,796,832 - Application March 27, 1952. Howard A. Pritchard - Assigned to Harris Seybold Co. Inc. Official Gazette 719, No. 4, June 25, 1957, p. 711. In a planographic printing press, the combination with a normally rotating cylinder to be dampened, an electrode parallel to but spaced from said cylinder, an electrically conducting shell enclosing said electrode and open toward said cylinder, means for connecting said electrode to a high potential source of electricity and for connecting said cylinder and said shell to ground to establish a field of force between the electrode on the one hand and the cylinder and shell on the other hand, said shell extending to a point displaced from the electrode in the direction of rotation of the cylinder and closer to the cylinder at that point than the spacing between the cylinder and the electrode, and means for creating a fog containing finely divided ink-repellent moisture particles and directing it into said field of force, whereby the moisture particles coming within said field of force are deposited either upon said cylinder or upon said shell.

GRAPHIC ARTS - GENERAL

CONTROL CHARTS FOR PRINTERS, Part 1 and 2. Warren L. Rhodes. Graphic Arts Progress 4, No. 3 and 4, pp. 1 and 2 each issue (4 pages in all), May-June; July-August, 1957. A brief discussion of quality control charts and their use in the photographic department of a printing plant.

*IMAGE-TRANSFER MECHANISM. U. S. Patent 2,684,902. C. R. Mayo and W. G. Lewis - Assigned to Haloid Co. Eastman Kodak Mon. Abstr. Bull., vol. 41, no. 10, Oct. 1955, p. 545; Printing Abstracts 11, No. 2, February 1956, p. 94. A mechanism for electrostatic transfer of powder images from a xerographic plate comprises a corona-discharge electrode for inducing intimate contact between the plate and the sheet and for transferring the powder image; a plate feeding mechanism for advancing the xerographic

plate under the electrode; a chute to feed the receiving paper, making an angle greater than 5° with the plate; and a common drive for advancing the plate and the receiving sheet.

*DUPLICATING PROCESS. U. S. Patent 2,798,427 - Application April 10, 1953. R. J. Klimkowski and R. T. Florence - Assigned to A. B. Dick Co., Inc. Official Gazette 720, No. 2, July 9, 1957, p. 285. A multiple duplicating process for office work, comprising the steps of positioning the surface of a duplicating master in contact with the coated side of a transfer sheet having a transfer coating substantially free of any dye color and containing at least one of the components for reaction to form an azo dyestuff, imaging the master by transfer of coating from the transfer sheet in response to applied force, wetting the surfaces of the copy sheets with a solvent for the azo dye component in the imaged master, contacting the imaged surface of the master with the copy sheets wetted with a fluid containing a solvent for the dye-forming component to cause some of the material to be leached from the master for transfer to the copy sheets and form a latent image thereon, and then contacting the surface of the copy sheets having the latent image with a solution containing the other ingredient to introduce the other ingredient for reaction with the azo dye component to develop the azo dyestuff in the latent image to form the image in the copy sheets. The method of producing multiple copies by a planographic process, comprising the steps of positioning the surface of a duplicating master in contact with the coated side of a transfer sheet having a transfer coating containing a diazo compound stabilized to prevent reaction with a coupler to form an azo dyestuff while in a strongly acidic medium, imaging the master by transfer of coating from the transfer sheet to the master in response to applied force, wetting the surface of the copy sheets with a fluid containing a solvent for the diazo compound and also containing a coupler, contacting the imaged surface of the master with the copy sheets wetted with the fluid containing a solvent for the diazo compound and coupler to leach some of the diazo from the imaged master for transfer to the copy sheets to form a latent image thereon while maintaining

the materials at a pH sufficiently acidic to prevent coupling, and subsequently wetting the surface of the copy sheets with a base for adjusting the pH to a level where reaction can take place between the diazo and coupler to form the azo dyestuff thereby to develop the image in the copy sheets.

*PROCESS OF FOUR-COLOUR PRINTING AS WELL AS BLOCKS TO BE USED THEREFOR AND THE PRINTS OBTAINED WITH SAID BLOCKS. U. S. Patent 2,798,428 - Application November 21, 1951. Daniel Tollenaar - Assigned to Stichting Instituut voor Grafische Techniek T.N.O. Official Gazette 720, No. 2, July 9, 1957, p. 285. A process for the production of four-colour prints, using three identical square screens, the corresponding symmetry axes thereof forming angles respectively of 30° and 60° for printing respectively three colours and using a fourth hexagonal screen, an axis of which forms an angle of 15°, 45° and 75° respectively with an axis of the three first-mentioned screens, the dot-distance of said fourth hexagonal screen being between 1.5 and 2.5 times the dot distances of the other screens for printing the fourth colour.

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LITHOGRAPHIC ABSTRACTS

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LITHOGRAPHIC ABSTRACTS - OCTOBER 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

*SHARP PICTURES FROM UNSHARP NEGATIVES. H. J. Fritzsch. Bild & Ton 9, 100 (April 1956); Ansco Abstracts, vol. 16, no. 5, May 1956, page 222. Professor S. C. Herz has constructed a tube for attachment to a projector or enlarger in which an unsharp image is scanned, the focal plane corrected, and the corrected image projected on the paper through a cathode ray tube. The apparatus still requires simplification for more general use. It is also expected to correct pictures which have been distorted by camera movement, not by movement of parts of the object.

*GRAY MASKS BY SCANNING. German Appli. 1,007,622 57b 18/08 8/16/54-5/2/57. E. Gretener; Zurich (Switzerland). Ansco Abstracts, vol. 17, no. 6, June 1957, page 275. Customary gray masks improve color reproduction to some extent but cause color falsification. The described procedure involving 4 scannings by a flying spot scanner with 3 photocells and copying of a cathode ray screen leaves hue and saturation unchanged from the highlights to the deepest shadows. The internegative material used carries on one side of the film support a silver halide emulsion for the neutral gray mask and an antihalation layer so that exposure of this emulsion does not affect the color emulsions on the other side. Their place may be taken by an imbibition layer for dye transfer by the Technicolor process. The silver image determines the sharpness of the picture, the dyes impart the coloration; thereby the registration requirements are relaxed.

*EMULSIONS SENSITIZED FOR HALFTONE PATTERNS. Patent 2,742,833 95/8 6/29/51-4/25/56. R.M. Evans, R.E. Stauffer & H.C. Yutzy to EK. Ansco Abstracts, vol. 16, no. 5, May 1956, page 239. A halftone pattern is printed on a blue-sensitive lithographic emulsion in the form of a green-sensitizer solution. The dye is applied near the center of the dots only, so that it diffuses somewhat and the induced sensitivity at the edges of the dots is lower. Exposure through a blue filter will produce a continuous tone image only, a green or yellow filter

a halftone image. The possibility of imprinting a green-sensitive 50-line screen (for newspapers) and a red-sensitive 120-line screen (for magazine copies) is considered. 11 process and product claims.

*ELECTRO-OPTICAL SYSTEM FOR PRODUCING OUTLINE PICTURES FROM CONTINUOUS TONE ORIGINALS. U. S. Patent 2,801,279 - Application October 27, 1950. John A. C. Yule - Assigned to Eastman Kodak Company, Inc. Official Gazette 720, No. 5, July 30, 1957, p. 1037. An electro-optical system for producing an outline picture from a single continuous tone record including means comprising a scanning beam for scanning the single continuous tone record, elemental area by elemental area, means responsive solely to differences in the intensity of the scanning beam as modified by adjacent areas of the record for establishing an electric signal when the density gradient between such areas in the single record exceeds a predetermined value, and means for exposing a photosensitive layer to a scanning beam whose intensity is controlled by said last-named means.

*VARIABLE GRADATION HALF-TONE SCREENS. Netherland Patent No. 714,710. Stichting Instituut voor Grafische Technek van de Organisatie voor Toegepast-Natuurwetenschappeujj, Onderzoek, Ter Gouwstraat, 1, Amsterdam, The Netherlands. Application date (Netherlands): Nov. 15, 1950. Published: Sept. 1, 1954, The British Journal of Photography, August, 1956. According to this specification it is proposed that an aperture of, for example, triangular shape shall be illuminated by a condenser system and imaged by a lens at considerable reduction upon a photographic dry plate. The photographic material is traversed across beneath the optical system so that a latent image is formed of a line varying across its width from very dense at one side to transparent at the other. The photographic material is then moved at right angles to the length of the latent image line by a distance equal to the width of the line and the traverse repeated, and so on until the whole area is ruled with latent image lines which may be developed to form either a silver grain image or a homogeneous dye image by colour former development. It is stated that two such plates may be made

and sealed together with the lines crossing at right angles, much in the manner of conventional engraved half-tone screens, or the sheet of photo-sensitive material may be ruled with latent image first in one direction and then at right angles across the first set of lines, thus producing the crossline effect. The inventors point out that the shape of the aperture in the optical system can be of any form and so the variation in density across the latent image lines is infinitely controllable.

PLANOGRAPHIC PRINTING PROCESSES

*PLANOGRAPHIC PRINTING OF MICROCARDS. Canadian Patent 523,510 5/15/51 - 4/3/56. A.Boni to Readex Microprint Corp. Ansco Abstracts, vol. 16, no. 4, April 1956, page 202. In the use of a rotary planographic printing plate and a resilient blanket moistening and a light coating of ink are applied repeatedly to the plate before impressing it against the sheet under heavy pressure. 10 process and product claims.

*MOLLETON ROLL FOR LITHOGRAPHIC PRESSES. U. S. Patent 2,800,855 - Application July 3, 1953. Clarence Lloyd Claff and Carl A. Moeller - Assigned to M. B. Claff & Sons, Inc. Official Gazette 720, No. 5, July 30, 1957, p. 936. A moistening roll for a lithographic press, comprising a rigid imperforate cylindrical tube, a porous fabric cover surrounding the tube, said cover being adapted to permit capillary flow of liquid therethrough and being substantially longer than the tube and having its ends turned inwardly of the ends of the tube and extending into the interior thereof, and sleeves within the inturned cover portions adjacent the outer ends of the interior of the tube, the cover intermediate the sleeves and the tube being free to transfer moisture between the cover outwardly of the roll and the inturned ends inwardly of the tube.

*PLANOGRAPHIC PRINTING PLATES AND METHODS FOR MANUFACTURING SAME. U. S. Patent 2,800,077. Thomas U. Marron - Assigned to A. B. Dick Co., Inc. - Application March 27, 1952. Official Gazette 720, No. 4, July 23, 1957, p. 726. A lithographic

printing plate comprising a base sheet and a continuous layer on the surface of the base sheet which layer forms the hydrophilic lithographic surface of the plate and consists of a polyphase system having a hydrophilic, water insoluble, film forming colloid as the continuous phase and a dispersed phase of an ink receptive water repellent imaging material which forms an ink receptive image on the lithographic surface when released to the surface of the coating from the polyphase system in the imaged areas.

PROPERTIES AND PROCESSING OF PRESENSITIZED OFFSET PRINTING PLATES. Axel Lundbye. Printing Equipment Engineer 87, No. 12, September 1957, pp. 50, 51, 78 (3 pages). This is a discussion of the properties and processing of presensitized plates considering: mounting, form roller adjustments, running adjustments, negatives and plate connection.

*DEVELOPER FOR PRESENSITIZED PLANOGRAPHIC PRINTING PLATES. U. S. Patent 2,754,279. Minnesota Mining and Manufacturing Co. and M. W. Hall. Chem. Abstr., vol. 50, no. 18, 25 Sept. 1956, col. 12713, Printing Abstracts, vol. 11, no. 12, December 1956, page 777. The developer described is capable of producing an image of increased thickness, improved wear resistance, and improved inking and printing qualities as compared with former developers. The aqueous phase consists of water 90, a 25% solution of gum arabic in water 18, and wetting agent 1.8 parts by weight. The non-aqueous phase consists of ethylene dichloride 50-60, cyclohexanone 40-50, epoxy resin 30, and toluidine toner 9 parts by weight. The epoxy resin may vary from viscous but fluid to hard and brittle.

*LIGHT SENSITIVE MATERIAL FOR PHOTOMECHANICAL PRINTING. U. S. Patent 2,759,820. Azoplate Corp., W. Neugebauer and M. Tomanek. Issued 21 Aug. 1956; Marathon Graph. Arts Abstr., vol. 3, no. 9, Sept. 1956, page 118, Printing Abstracts, vol. 11, no. 12, December 1956, page 776. Thin sheets of grained aluminium bearing a layer of cinnamal malonic acid in which azido groups are substituted are used as photo-litho plates.

*LITHOGRAPHIC PRINTING. British Patent 755,417. Appl. 22 Dec. 1954, U. S. 5 Jan. and 29 Sept. 1954, publ. 22 Aug. 1956; Pat. Abstr. J1, no. 3515, 22 Aug. 1956, p. A-897, Printing Abstracts, vol. 11, no. 12, December 1956, page 753. The ink-receiving surface of a printing plate, etc., is wetted before contacting the inking mechanism, and a portion of the moisture on the plate is transferred to the mechanism. The ink retained on the mechanism is subjected to an air current to increase the evaporation of water therefrom.

PAPER AND INK

*INKS FOR PLASTICS. Rabaté. Peintures Pigments-Vernis, Feb. 1956, pp. 122-3 (Les presses documentaires, 28 rue St. Dominique, Paris 7e) (D187.83/14, 973:) Printing Abstracts, vol. 11, no. 9, September 1956, page 528. The principles of the formulation of inks for plastics are discussed, the necessity of approximating the chemical and physical properties of the inks as closely as possible to those of the plastics being stressed. Part of the difficulty in effecting permanent adhesion is due to the migration of the plasticiser. The addition of a swelling agent, e.g., dibutyl phthalate, with or without methyl methacrylate, to an ink to increase its adhesion to a vinyl plastic has been suggested. Hints are given on the preparation and printing of inks for polyvinyl plastics.

*TRANSFER METHOD OF PRINTING ON PLASTIC FILMS. Australian Patent, 163,012. Brock, H.W. Metal Box Co. Ltd. Res. Divsn. Survey Lit., Dec. 1955, p. 16; Printing Abstracts, vol. 11, no. 9, September 1956, page 581. The pattern is printed in any desired number of colours, with inks compatible with the plastic film, on to paper or, possibly, on to an endless metallic belt, to form the transfer. The plastic film is applied to the transfer in the form of a cold paste or by extrusion, and the film and support are heated to a temperature and for a time sufficient to ensure fusion of the pattern with the film. After cooling, the film carrying the pattern and the support are separated by stripping. Polyvinyl chloride and polythene are among the plastic materials which are suited to this method of printing.

*ON THE ACIDITY OF PAPER. Anon. Allg. Pap. Rdsch. no. 12, 20 June 1956, pp. 588, 590, 592, 594, 596, 598 (in German); Printing Abstracts, vol. 11, no. 9, September 1956, page 532. The determination of the acidity of paper is discussed under: (1) the pH value of the extract (the effect of concentration and time of extraction, the influence of ions, and a comparison of the TAPPI method with the sodium chloride method); (2) the acid content of the extract (influence of concentration and time of extraction, the extraction method, extraction in presence of caustic soda and experiments to investigate these phenomena). The investigation showed that the usual methods of extraction are not satisfactory for determining the amount of acid present in a paper. This is apparently due to the fact that aluminium compounds are strongly adsorbed by the cellulose. Neither do the other methods proposed, such as extraction in the presence of alkali, appear to offer any promise of giving a value corresponding to a definite equilibrium, although they offer the advantage of allowing a more rapid neutralisation of the fixed acidity. However, this method may lead to a degradation of the cellulose by the alkali. The method could be improved by the use of borax in place of caustic soda. Estimation of the aluminium, followed by a determination of the acidity (or alkalinity) after precipitation of the aluminium, would appear to be a more satisfactory method.

ORGANIC PIGMENTS IN PRINTING INKS. F. M. Smith. Paint Manufacture 27, No. 8, August 1957, pp. 296, 297, 298 (3 pages). Although very few new pigments have been introduced in recent years, improvements to existing colours have been made. This article deals briefly with some new introductions and surveys developments relating to general properties.

*A NEW APPARATUS FOR DETERMINING THE EQUILIBRIUM MOISTURE CONTENT OF PAPER. Gaehauf, H. Textil Rdsch., vol. 11, no. 7, July 1956, pp. 409-18 (in German); Printing Abstracts, vol. 12, no. 1, January 1957, page 15. Changes in R.H. of 0.2% can be measured with this electronic hygrometer (Zellweger A.G., listed).

THE INFLUENCE OF THE MOISTURE CONTENT OF OFFSET INK ON BLACKNESS. J. H. Bitter. I.G.T. Nieuws, vol. 9, no. 9, Sept. 1956, pp. 129-135 (in Dutch). Printing Abstracts, Vol. 12, no. 1, January 1957, page 5. Research undertaken by the I.G.T. is described. It is proved that the blackness decreases as the moisture content of the ink increases.

*KEL-F PLASTIC PRINTING INKS. Anon. M. W. Kellogg Co., Chemical Mfg. Divsn., Jersey City 3, N. J. (Mcb/Kellogg/15, 185) Printing Abstracts, vol. 12, no. 1, page 5, January 1957. These inks will adhere to plastics such as polyethylene, vinyl films and nylon. They are available in two grades: air drying, supplied either as ink concentrates or as pigment suspensions with a separate clean binder, and heat-set. The air-drying inks can be printed by gravure or offset or with a rubber stamp from a stamp pad; the heat-set inks, which include a conductive silver for printed circuits, can be printed by the screen process or offset or with a rubber stamp.

LITHOGRAPHY - GENERAL

SUMMARY OF SMALL OFFSET DUPLICATORS AND PRESSES. James S. Wilkinson. Modern Lithographer 24, No. 11, November 1956, pp. 34-37, 149-151 (6 pages). A survey of important features of the Multilith, Davidson Dual, A. B. Dick, ATF Green Hornet, Whitin Masterlith, Miehle Lithoprint and the Harris 14 x 20 offset presses and duplicators. Other notes of interest are mentioned, such as, economy of operation, mechanical simplicity and the ability to produce high-quality printing in a very short time.

HOW MEYERCORD CO. MANUFACTURES DECALCOMANIAS. The Inland Printer 139, No. 5, August 1957, pp. 46, 47, 97 (3 pages). Decalcomanias essentially are plastic films produced upon temporary paper backing. The plastic films are transferred to other items for decorative, identification, instructional and security purposes. The major steps in decal production are discussed in relation to film, press, inks and quality testing.

NEW BRITISH OFFSET DUPLICATOR. Offset Duplicator Review 7, No. 9, September 1957, pp. 46, 81 (2 pages). The Lithoset, designed for the office, prints direct from a reversed image master. The printing plate is brought into direct contact with paper. The plate size is 14 x 9 and two kinds are available. One is a pre-sensitized metal and the other is a special direct image plate for typewriters and drawn work.

WHAT ARE THE SPECIAL PROBLEMS OF LABEL LITHOGRAPHERS? Modern Lithography 25, No. 9, September 1957, pp. 46-47 (2 pages). A survey of 40 large label lithographers by Modern Lithography on the subject of label printing. The article includes discussion of paper and inks and a gross sales report on lithographic, letterpress and gravure label printing.

GRAPHIC ARTS - GENERAL

*POLYAMIDE PRINTING PLATES. German Patent 954,127 57d 2-01 3/26/54 - 12/13/56. R. M. Leekley and R.L. Sorenson to Time, Inc. Ansco Abstracts, vol. 17, no. 3, March 1957, page 113. The use of synthetic linear polyamides with ammonium dichromate for printing plates is known. The present patent employs a minor quantity (5-10%) of an unsaturated compound with at least 2 $H_2C{=}C{=}$groups which during exposure render the polyamide insoluble by crosslinking, e.g. N,N' - methylene bisacrylamide. As catalyst a compound such as benzophenone is added, e.g. 1%.

*THERMOGRAPHIC MAGNETIC PRINTING PLATES. Patent 2,793,135. 117/17/5. 12/1/55 - 5/21/57. J. C. Sims, Jr., and C.A. Norton to Sperry Rand Corp. Ansco Abstracts, vol. 17, no. 6, June 1957, page 279. While previous patent applications have described magnetic printing plates requiring scanning for image recording, the present patent employs selective demagnetization by heating (exposure to an infrared lamp through a transparency) a plate or drum above the Curie point of its magnetic ferrite coating. Magnetic ink is retained in the still magnetized areas. By applying an erasing alternating current field the temperature for demagnetization can be lowered. The process can also be accelerated by application of an overall heat source insufficient to cause demagnetization. 27 process and printer claims.

*XEROGRAPHY TODAY. J. H. Dessauer, G. R. Mott and H. Bogdonoff (Haloid Co.). Phot. Engin. 6, 250-69 (#4, 1955); Ansco Abstracts, vol. 16, no. 4, April 1956, page 151. The development of the various steps of xerography since its beginning in 1938 is reviewed and its applications, including multiple transfer, reduction printing on punched cards, in lithography and radiography, are reviewed. Continuous tone xerographs are difficult to distinguish from silver halide photographs, and panchromatic plates with an ASA speed rating of 20, compared with 2 for the commercial XeroX plates, are under study. The appended bibliography cites 38 references.

*ELECTROSTATIC CLEANING OF XEROGRAPHIC PLATES. U. S. Patent 2,752,271. Haloid Co., Walkup, L.E., Carlton, H.E., Jr. Off. Gaz. U. S. Pat. Off., vol. 707, no. 4, 26 June 1956, p. 1034. Printing Abstracts, vol. 11, no. 9, September 1956, page 567. The method consists in placing a negative electrostatic charge on the surface of the photoconductive insulating layer carrying the residual image to make the composite surface of the xerographic plate and the residual image electrostatically negative, and rapidly brushing the surface to remove the residual image.

*METHOD AND APPARATUS FOR PREPARING A LATENT MAGNETIC IMAGE. U. S. Patent 2,793,135 - Application December 1, 1955. John C. Sims, Jr., and Clyde A.Norton - Assigned to Sperry Rand Corp. Official Gazette 718, No. 3, May 31, 1957, p. 603. The method of preparing a printing surface which comprises applying a pattern of heat gradients to a uniformly magnetized surface thereby to selectively demagnetize portions of said surface in accordance with intelligence to be reproduced. The method of claim 2 including the further step of applying a magnetic ink to said surface subsequent to said selective demagnetization.

*LIGHT-SENSITIVE PLASTICS. German Appl. F-10849 IVa/57d 2/01. G. A. Schroter to Feldmuble Papier- & Zellstoffwerke A.G. Ansco Abstracts, vol. 16, no. 4, April 1956, page 201. A polymer is condensed with a reactive compound containing at least 3 fused rings. In the example given polyvinyl alcohol is reacted with 9-anthracenealdehyde. Chlorobenzene is mentioned as suitable solvent for coating on metal to obtain sensitized printing plates of long shelf life. (Cf. abstr. 156/56.)

DEVELOPS NEW PRINTING LAMP. Modern Lithography 25, No. 9, Sept. 1957, p. 122 (1 page). Strong Electric Corporation is marketing the Grafarc Tri-Power arc lamp. This particular lamp is a three electrode arc producing a single light source. This method reduces any tendency for dot undercutting and produces three times the usable light output possible with 140 amp, says the manufacturers.

LITHOGRAPHIC ABSTRACTS

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LITHOGRAPHIC ABSTRACTS - NOVEMBER 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

*EMULSIONS SENSITIZED FOR HALFTONE PATTERNS. U. S. Patent 2,742,833, June 29, 1951. R. M. Evans, R. E. Stauffer and H. C. Yutzy (Eastman Kodak Co.). Photographic Abstracts, part 4, 1956, page 248. A halftone pattern is printed on a blue-sensitive, lithographic emulsion in the form of a green-sensitizer solution. The dye is applied near the centre of the dots only, so that it diffuses somewhat and the induced sensitivity at the edges of the dots is lower. Exposure through a blue filter will produce a continuous tone image only, a green or yellow filter a halftone image. The possibility of imprinting a green-sensitive 50-line screen (for newspapers) and a red-sensitive 120-line screen (for magazine copies) is considered.

*PROCESS OF PRESCREENING PHOTOGRAPHIC MATERIAL INVOLVING REHALOGENATION. U. S. Patent 2,805,157 - Application July 1, 1955. Richard E. Maurer - Assigned to Eastman Kodak Co. Official Gazette 722, No. 1, September 3, 1957. The method of prescreening a silver halide emulsion layer which comprises exposing the layer through a halftone screen to substantially uniformly distributed light, developing the layer to metallic silver grains distributed in accordance with a halftone pattern among the unexposed silver halide grains in the emulsion, washing the layer, bleaching the layer in a bath containing halide ion to rehalogenize the metallic silver to silver halide of lower sensitivity than the unexposed silver halide and drying the layer.

*ATTEMPT TO CLASSIFY THE VARIOUS TYPES OF MASKS. G. Muleau. Le Procede, 52;56-62, July-August, 1956; Bull. Bibliographique Kodak-Pathe, p. 5, No. 737, Aug. 14, 1956 (In French); Monthly Abstract Bulletin, vol. 43, no. 2, February, 1957, page 77. Definitions are given for premasks and final masks; and first-, second- (masked masks), and third-order masks are defined and discussed. Their production and use for correction of color separations for three- or four-color

work are considered, as well as their application to photolithographic prints on small office machines.

*RECENT DEVELOPMENTS IN THE THEORY OF COLOR PHOTOGRAPHIC REPRODUCTION. W. T. Hanson, Jr. Sci. et inds. phot., (2)27: 498, December, 1956; Monthly Abstract Bulletin, vol. 43, no. 2, February, 1957, pp. 117, 118. Most of the theoretical work in the field of color photographic reproduction has been based on the assumption that, for "exact" color reproduction, the tristimulus values of the reproduction must be equal to those of the original subject. It is not yet possible to establish the specific requirements for obtaining "exact" color reproduction with a subtractive process, but for any given set of dyes and emulsion sensitivity distributions which might be used in a subtractive process, it is possible to calculate the masks which would be required in obtaining minimum reproduction errors for any number of selected subjects. After making such calculations using a variety of assumed sensitivity distributions, it is concluded that there is no unique set of sensitivity distributions which, when used with a given set of dyes, will lead to a minimum of color-reproduction errors.

*MICRODENSITOMETER FOR REFLECTING SAMPLES. J. H. Altman and K. F. Stultz. Phot. Sci. and Technique, (2)4: 10-12, No. 1, February, 1957. Communication No. 1871; Monthly Abstract Bulletin, vol. 43, No. 2, February, 1957, page 115. The paper describes a microdensitometer for reflecting samples in which the sample is illuminated with a Leitz Ultropak Incident-Light Illuminator and curves of density versus distance are recorded by a Brown (Electronik) Recorder on rectangular co-ordinates. The sensitivity of the system is sufficient to scan color print materials through the required filters. Resolution is 500 lines per mm. on a test grating, and the stray light is estimated at 2.0 percent.

*PHOTOCOMPOSING MACHINE. U. S. Patent 2,808,768 - Application July 23, 1953. Gino F. Squassoni - Assigned to Mergenthaler Linotype Co., Inc. Official Gazette 723, No. 2, October 8, 1957, p. 267. In a photocomposing machine, the combination

of an array of typographical characters arranged into two crossing sets of rows, the rows of the two sets being spaced in directions transverse to each other, a single electron tube having an input screen at one end and an output screen at the other end, the inside surface of the input screen having a photo-emissive coating and the inside surface of the output screen having a fluorescent area for receiving the image of a single selected character, said area serving as a common character presentation point for all of the singly selected characters, means for forming an image of the whole character array on the input screen by light rays, to cause the photo-emissive coating of the input screen to emit an electron image beam of the entire array and for directing the electron image beam in said tube in inverted form towards said output screen, means for deflecting the electron image beam while in said tube in two directions transverse to each other, to bring any selected part of the beam representing a selected character within the predetermined output screen area constituting the common presentation point for all the singly selected characters in the array, and to form an image of the selected character on said output screen area, and an optical system for projecting the image of the selected character from said output screen area onto a light sensitive member.

*NEW PROCESS OF ELECTRIC PHOTOGRAPHY. J. Berchtold. Sci. et inds. phot., (2)26:465-71, December 1955; Monthly Abstract Bulletin, vol. 42, no. 6, page 292, June 1956. Photoconductivity is utilized to obtain photographic reproductions. The electrophotographic unit consists of five layers. A semi-transparent electrode is coated on a thin photoconductive layer, such as selenium. The latter is placed on top of a plate which conducts only in the direction perpendicular to its surface. An electrosensitive paper is sandwiched between the plate and a second electrode. The plate is made up of insulated nickel wires, 0.07 mm. in diameter, bonded together by a synthetic resin. The paper contains an azo compound and a phenol or aromatic amine which will couple with it when the pH is increased by

electrolytic action at the cathode. A potential is applied between the two electrodes and adjusted so that current flows when the selenium layer is exposed to light. A light image falling upon the selenium layer is thus reproduced as a photographic image on the photosensitive paper.

PLANOGRAPHIC PRINTING PROCESSES

*PRINTING PLATE. British Patent 767,074, appl. 11 Mar. 1955. Creed & Co., Ltd. Pat. Abstr. J., no. 3538, 30 Jan. 1957, p. 20; Printing Abstracts, vol. 12, no. 4, April 1957, page 221. An electrically inscribable lithographic offset printing plate having an adherent conductive ink-receptive layer of carbon particles held by an elastomeric binder and a thin adherent surface coating comprising a pigment dispersed in a hydrophilic, water-insoluble binder for receiving an ink-repellent solution and preventing ink transfer to the background area of the inscribed printing plate, which coating is disintegrated when subjected to electrical marking currents to expose the underlying ink-receptive layer.

*N(P-CINNAMOYLPHENYL) URETHANS OF HYDROXYL CONTAINING POLYMERS. U. S. Patent 2,728,745. Eastman Kodak Co., Smith, A.C., and Unruh, C.C. Photogr. Abstr., vol. 36, no. 4, 1956, p. 248; Printing Abstracts, vol. 12, no. 5, May 1957, page 305. Photographic resists up to 280 times as light-sensitive as polyvinyl cinnamate and soluble in organic solvents are prepared from N-(cinnamoylphenyl) urethane derivatives of hydroxyl-containing polymers. Further sensitization is obtained by the addition of Michler's Ketone or 2-benzoylmethylene-1-methyl-β-naphthothiazoline.

*PHOTOSENSITIVE PLATE. British Patent 767,912, appl. 25 Mar. 1955, U. S. 26 Mar. 1954. Time Inc. Printing Abstracts, vol. 12, no. 5, May 1957, p. 306. A printing plate (for offset, photogravure, letterpress and silk screen printing, etc.) is formed by exposing to radiant energy selected portions of a photosensitive mixture, which is insolubilised by exposure, consisting of a synthetic linear polyamide soluble in a developer solution, and a minor proportion of an unsaturated compound, capable of cross linking the polyamide, and either containing two vinyl

groups, at least one of which is a group other than alkyl, or containing more than two vinyl groups, and dissolving away unexposed soluble polyamide.

*PLANOGRAPHIC PRINTING PLATE. U. S. Patent 2,808,778 - Application September 16, 1953. Douglas A Newman and Allan T. Schlotzhauer - Assigned to Columbia Ribbon and Carbon Manufacturing Co., Inc. Official Gazette 723, No. 2, October 8, 1957, p. 269-270. A planographic printing plate for the reception of direct images including those formed by carbon paper, comprising a flexible foundation sheet having an image receptive surface; and a planographic surface coating forming a layer overlying and adherent to said flexible foundation on one side thereof comprising a hydrophilic colloid binder and a filler, said coating being substantially continuous but not in excess of 6 pounds per ream in weight, and the ratio of the weight of said filler to the weight of said binder being not less than and not substantially in excess of the values given by Fig. 2. The method of making a planographic printing plate which comprises applying a planographic surface coating to the surface of a flexible foundation using a composition consisting essentially of a primarily aqueous dispersion of a carboxymethyl cellulose compound of coatable viscosity, and ammoniacal copper sulphate, a chromium compound and ferric ammonium citrate, the ammoniacal copper sulphate being about 1 to 2 times the weight (dry basis) of the ferric ammonium citrate, and the chromium compound being between about 1/2 and 3/4 of the weight of the ferric ammonium citrate, the total weight (dry basis) of said ammoniacal copper sulphate, chromium compound and ferric ammonium citrate being on the order of 1 to 2 times the weight of the dry carboxymethyl cellulose compound; and drying the coating to provide a water insoluble printing surface layer.

*PAPER PLANOGRAPHIC PLATE. U. S. Patent 2,805,621 - Application February 10, 1954. Howard H. Pickrel - Assigned to The Standard Register Co., Inc. Official Gazette 722, No. 2, September 10, 1957, p. 278. A planographic printing plate comprising a bond paper base sheet having therein a tough, flexible, firmly-adhering

coating, in thickness of from 1 to 5 thousandths of an inch, which results from the application to one surface of said sheet and subsequently heating, a composition consisting essentially of an emulsion containing 10-40 g. sodium carboxymethylcellulose, 10-40 g. melamine-formaldehyde in the thermosetting stage, 10-40 g. ammonium nitrate, 5-20 cc. ammonium hydroxide, 0-50 cc. glycerine and 300-800 cc. water, said coated sheet being heated at 200°- 400° F. for 30 seconds to 30 minutes.

*PRINTING PLATES. U. S. Patent 2,732,796 - Filed May 17, 1951. C. H. Van Dusen Jr. - Assigned to Addressograph Multigraph Corp. Monthly Abstract Bulletin, vol. 43, no. 4, April, 1957, page 194. A grained zinc or aluminum lithographic printing plate is treated, before sensitizing, with a water solution containing 0.1 to 5.0 percent by weight of a soluble alkali silicate, e.g., sodium silicate, then rinsed with water, and dried. The thin, water-insoluble silicate film makes the plate more strongly hydrophilic and reduces the tendency to scum in printing, or to corrode in storage.

*PRODUCTION OF PLANOGRAPHIC PLATES. French Patent 953,096 - Filed Sept. 8, 1947. Gevaert Photo-Producten N.V. 3 pp. Monthly Abstract Bulletin, vol. 43, no. 4, April, 1957, page 193. Lithographic plates on which the original is copied manually or mechanically are made by coating a layer of a hydrophilic colloid, such as gelatin, on a support, e.g., metal or paper, adding to the layer one or more reducing agents, e.g., pyrogallol, and one or more salts of a multivalent metal in the higher valence state, e.g., $CuCl_2$, and optionally a hardening agent, e.g., formaldehyde. For a photolithographic plate, this colloidal layer is overcoated with a non-hardened emulsion layer and treated with a soluble monobasic or polybasic aliphatic acid or hydroxy acid, e.g., citric acid, or with an aromatic or saturated aliphatic hydrocarbon, e.g., benzene, to reinforce the ink-receptivity of the image areas obtained by conventional means, e.g., halftone image exposure, tanning development, and washing with hot water.

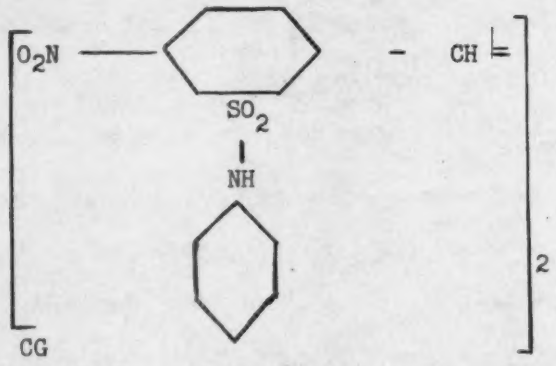
*FIXING DIAZOTYPE PRINTING FOILS. U. S. Patent 2,739,889 - Filed Dec. 3, 1951. W. Neugebauer, J. Barthenheier - Assigned to Azoplate Corp. Monthly Abstract Bulletin, vol. 43, no. 4, April 1957, page 190. A lithographic plate material is sensitized with (1) a diazo compound of the general formula: $R(R_1)N--Ar--N_2--X$, in which X is an equivalent of an anion; Ar is an aromatic residue; R is a substituted or unsubstituted aryl, aralkyl, or aroyl group; and R_1 is hydrogen, or an alkyl, aryl, or aralkyl group; (2) condensates of such compounds with aldehydes; or (3) sulfonates of the diazo compound or the condensates. After the plate is exposed to an original, the exposed non-printing areas are fixed by applying greasy ink and water to the surface, treating it with a solution of water-soluble organic colloid, e.g., dextrin, gum arabic, or polyvinyl alcohol, giving it an over-all exposure, and removing the colloid to make a lithographic printing plate.

*DIAZO MATERIALS. French Patent 1,031,581, Addition 63,006 - Filed Jan. 30, 1952. B. Ostersetzer, W. Mauss - Assigned to Kalle & Co. Monthly Abstract Bulletin, vol. 43, no. 4, April, 1957, page 190. In a process for making positive-working lithographic printing plates, light-sensitive, water-insoluble diazo compounds comprising the esters or amides of sulfonic or carboxylic acid derivatives of 1- or 2-diazo-5, 6, 7, 8-tetrahydro-1, 2-naphthoquinone are coated either with or without an alkali-soluble resin vehicle, e.g., rosin or shellac, on a zinc or aluminum support, which may also bear an alkali-soluble resin undercoat. After exposure, the image may be developed in 5 percent trisodium phosphate, followed by 1 percent phosphoric acid solution, and then inked.

*DIAZOSULPHONATE-SENSITIZED METAL PRINTING PLATES. German P. Appln. K-2325. Kalle & Co. A.G., Sus, O., and Werner, G. Photogr. Abstr., vol. 36, no. 4, 1956, p. 248; Printing Abstracts, vol. 12, no. 5, May 1957, page 303. The sensitizing compounds are obtained by reacting equimolecular quantities of an aromatic or heterocyclic diazonium hydrochloride and of an aromatic or heterocyclic diazo-sulphonate in aqueous solution. Preferably both parent compounds are light-sensitive.

The compounds, usually yellow, can be recrystallized from organic solvents. Plates coated with these compounds, if desired in combination with alkali-soluble resins, are quite stable. They are developed by alkaline solutions which dissolve the undecomposed sensitizer leaving an oleophilic image.

*PRINTING PLATES WITH SULFANILIDOSTILBENE COMPOUNDS. French Patent 1,103,269 7/1/53 - 11/2/55. Kalle & Co. Ansco Abstracts, vol. 16, no. 4, April 1956, page 201. While the light-sensitivity of stilbene compounds is known since 1902, they become useful as sensitizers for aluminum printing plates only by the introduction of sulfanilido or arylsulfamido groups. They are applied as 1% solution in an organic solvent.



An example in glycol mono-methyl ether.

POSITIVE DIAZOTYPE PRINTING PLATES. U. S. Patent 2,772,972. General Aniline & Film Corp., Herrick, C.E., Jr., Woitach, P. T., Jr. and Trojnar, E. J. Chem. Abstr., vol. 51, no. 4, 25 Feb. 1957, col. 2438; Printing Abstracts, vol. 12, no. 5, May 1957, pp. 302-03. Positive offset-printing plates are produced by coating a base material with a copolymer of vinyl methyl ether and maleic anhydride and with additional layers of a water-insoluble, alkali-resistant adhesive resin and a light-sensitive, water-insoluble diazo oxide which is soluble in liquid aliphatic esters, ketones, or alcohols. Thus, a solution containing 2-diazo-1-naphthol-5-sulphonic acid ethyl ester 2·0, a phenol-modified coumarone-indene resin 2·0 g., and methyl iso-butyl ketone 100 ml. was applied by dip beading on to the lacquered surface of a wet-strength, clay-resin-surfaced paper which had been coated with a lacquer

containing 1·2 g. poly (vinyl ether)-maleic anhydride copolymer (d. in methyl ethyl ketone 1·8-2·5), 0·3 g. high-Ac, high-viscosity cellulose acetate (61·8% combined acetic acid), 20 ml. methylene chloride, 5 ml. methyl Cellosolve, and 75 ml. acetone. After exposure to light on a white print machine, the plate was swabbed with a mixture of 77 ml. ethylene glycol and 23 ml. glycerol and then with a mixture of 10 parts diethanolamine and 90 parts glycerol. Other suitable diazo compounds include N-dehydroabietyl(6-diazo-5(6)-oxo-1-naphthalene-sulphonamide) and N:N'-di(dehydroabietyl)-N:N'-ethylenebis(6-diazo-5(6)-oxo-1-naphthalenesulphonamide). Aluminium offset plates having surfaces prepared as in U.S. Pat. 2,637,929 were sensitized by coating with a 2% solution of N:N'-4:4'1-biphenylenebis(6(5)-diazo-5(6)-oxo-1-naphthalenesulphonamide) in dimethylformamide.

PAPER AND INK

*A NOVEL INKING METHOD BEING DEVELOPED. Anon. Printers' News, Auckland, vol. 15, no. 1, Feb. 1957, p. 7, Printing Abstracts, vol. 12, no. 5, May 1957, page 309. The process, which is still in the development state, consists in distributing a special ink on a hot printing plate. The heat of the plate drives off any solvents, and causes the ink to dry on the printing plate before impression. As the hot plate comes in contact with the paper, the ink is transferred to the paper in a dry state. Ink is completely transferred to the paper, with no ink residue left on the plate, which is freshly inked for each impression.

*EFFECT OF RELATIVE HUMIDITY OF THE AIR ON GLOSS OF PAPER. H. Troges. Paper Mkr., Lond., Mid-Summer No., 1956, pp. 34, 38; J. appl. Chem., vol. 7, no. 3, Mar. 1957, col. i-221; Printing Abstracts, vol. 12, no. 5, May 1957, page 272. Measurements on nine different writing and printing papers conditioned at various R.H. showed that gloss values were little affected at low humidities but decreased at higher humidities, i.e., above 65% or even 55% in the case of high-gloss papers.

A NEW PRINTING TESTER. Southern Pulp and Paper Manufacturer 20, No. 8, August 1957, p. 32 (1 page). A new printing tester was developed so that with little technical skill it is possible to determine rapidly, conveniently and numerically, the inter-relationship between printing ink and paper. This instrument manufactured by Karl Frank G.m.b.H., of Weinheim-Birkenau, Western Germany, will test properties for both letterpress and offset printing using printing blocks either solids or different screens transferring the image to foil, paper, rubber blocks or offset rubber blankets. The speed of printing can be varied as well as printing pressures.

*A NEW MOISTURE METER. Anon. World's Pap.Tr.Rev., vol. 147, no. 13, 28 Mar. 1957, p. 1024; Printing Abstracts, vol. 12, no. 5, May 1957, page 269. The meter developed by Mr. W. Gallay of the E.B. Eddy Co. operates on the principle of measuring the electrical resistance of the paper between two electrodes spaced on the same side of the sheet. An alternating current is used, which is said to obviate the problems of non-uniform contact pressure and static. In a range of moisture contents from 3% to 10% an operating accuracy of $\pm$ 0.2% has been obtained.

MORE PAPER FOR YOUR MONEY. C. V. Morris. Printing Magazine 81, No. 8, August 1957, pp. 38, 39, 40, 74, 75 (5 pages). Review of paper developments and general comparisons with "old materials." Papermakers investing over one billion dollars in improvements and installations for period 1956-58. Chemicals are improved - use of $CaCO_3$ cited as well as water treatment and use of optical bleaching agents giving Spectro-photometer readings of 88 to 89. Refinements in process equipment, leading to cleaner products give higher quality paper. Extra refining machines which result in additional cutting and hydrating of fibers give many advantages. Notes decrease in complaints due to RH maladjustment. Increased opacity results in ability to reduce weight of stock purchased by 5 lbs. in many cases. Notes increase in offset so that trend in sizing is toward harder finishes. Variation in caliper thickness is being lessened by "Beta Gauge" or "Accuray" controls on paper machines.

"Pigmentizing" with clay, and starch-pigment with formaldehyde resins improve printability and dimensional stability. Improved pulp qualities lead to less fuzzing and linting. Cites use of root starches for sizing, especially potato starch. Modern sheeters run 600'/min. compared to 250'/min. for older machines. Better pulp blending results in superior strength. Many offset grades made with sulphate fibres for better tear strength. Waterproof packaging of papers protect mill-goodness of papers. Other advantages in refinements in packaging cited. Electronic counting of sheets increases accuracy and assures full count.

LITHOGRAPHY - GENERAL

ALUMINUM FOIL...LAMINATING, COATING, PRINTING. James T. Truesdale. Share Your Knowledge Review, vol. 38, no. 11, August 1957, pp. 11-16, 6 pages. A comprehensive discussion including data based upon research development and manufacturing as well as the special printing problems which are involved. Lithography is recently entering this field although all of the problems have not as yet been worked out. Some of these problems are based upon the poor drying of moisture and of inks which has led to a study of the use of auxiliary drying equipment. A thorough discussion covers the problems which arise in printing upon aluminum foil by each of the reproduction processes.

QUALITY CONTROL - USE OF INSTRUMENTS, PART 18. Charles W. Latham. American Printer & Lithographer, vol. 138, no. 9, September 1957, pp. 30, 31, 34, 36, 4 pages. The various instruments and measurements which can be employed to eliminate guesswork from lithography are discussed. This discussion includes considerations of the relative importance and practicality of each type under various circumstances.

ANALYSIS OF OFFSET AND RELIEF DUPLICATORS. Offset Duplicator Review, Part II, October 1957, 11 x 15 chart - 4 pages. A detailed chart of specifications for 23 duplicators and small offset presses. The chart includes manufacturers recommendations as to the use of their models for line, halftone, solids, color registration, dry offset, hand type, linotype, rubber plates and electrotypes.

GRAPHIC ARTS - GENERAL

*PRINTING RELIEF IMAGES ON METAL BASES. British Patent 741,470. E. I. duPont de Nemours & Co. (U.S.A., Dec. 19, 1952)--Divided out of B.P. 741,441; Photographic Abstracts, part 4, 1956, page 247. Photopolymerizable layers as described in B.P. 741,441 (Phot. Abs., 1956, No. 1302P) are applied to metal bases, to which an anchoring layer is first applied, and exposed under a halftone or line negative to prepare a printing plate. A broad light source is used to produce sharp images.

PRINTING RELIEF IMAGES. British Patent 741,441. E. I. duPont de Nemours & Co. (U.S.A., Dec. 19, 1952) Patent of Addition to B.P. 741,294; Photographic Abstracts, part 4, 1956, page 247. Printing relief images suitable for the preparation of letterpress printing plates are prepared by the process described in the parent patent, the photopolymerizable layer being from 10-60 mils thick and applied to a film glass or paper-laminate support to which an anchoring layer such as a vinyl chloride/vinyl acetate/maleic acid resin is first applied. A strippable layer may be applied over the polymer layer to separate it from the printing transparency. Cross linking agents and filters are added to the polymer layer which is preferably solid or gelled and an anti-halation dye may be included in the anchoring layer.

HICKETHIER COLOUR SYSTEM. Printing World, vol. 160, no. 13, March 27, 1957, page 312. This is a book which includes and explains the Hickethier color chart. This is a three color printing of ten halftone steps giving 1,000 different colors numbered to indicate their components. A German version was printed in 1952. The new English edition is obtainable from Stonhill and Gillis Ltd., 296 High Holborn, London WC1; price L4.

PROBLEMS OF PRINTABILITY. Dr. E. Rupp. Archives for Printing, Paper and Kindred Trades, No. 2, 1955, pp. 166-174 (9 pages). This article gives factors that determine printability and defines them. The paper properties mentioned are smoothness, elasto-plasticity, homogeneity, deformation, fluffing, opacity, and picking. The printability tester developed by Leipzig Institute of Graphic Technics is presented.

Interesting graphs given are (1) % ink transfer vs. ink carried on letterpress plate for various papers, (2) % ink left on plate, blanket, and paper vs. press revolutions for offset.

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Art

LITHOGRAPHIC ABSTRACTS

Compiled by the Research Department of the

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LITHOGRAPHIC ABSTRACTS - DECEMBER 1957

PHOTOGRAPHY, TONE AND COLOR CORRECTION

COLOR SCANNING AND PHOTO MECHANICAL SEPARATION. Part 1. R. M. Smith. Modern Lithography, December 1956, pp. 61, 63, 65. Deficiencies of color process ink are related to corrections made by masking and scanning. Other problems of reproducing transparencies are discussed such as tone range and halftone losses, the black printer, and intentional changes.

COLOR SCANNING AND PHOTO MECHANICAL SEPARATION. Part 2. R. M. Smith. Modern Lithography, January 1957, pp. 73, 74, 117, 119. Transparency masking by two masks and black printer are described. Electronic scanning advantages are discussed.

COLOR SCANNING AND PHOTO MECHANICAL SEPARATION. Part 3. R. M. Smith. Pacific Printer, Publisher and Lithographer, March 1957, pp. 29-31 (3 pages). Detailed instructions are given for Magenta Masking and the preliminary steps of the Short Run Color Process.

A COLOR CHART FOR USE IN EVALUATING QUALITY OF COLOR REPRODUCTION. Edwin J. Breneman. Photographic Science and Engineering 1, No. 2, October 1957, pp. 74-78 (5 pages). To facilitate quantitative evaluation of the quality of color reproduction obtained with various photographic processes under given conditions of illumination, a color chart has been constructed. The twenty-four color patches include nine saturated colors, seven achromatic colors, and eight desaturated colors, among which are the familiar colors of flesh, foliage, and blue sky. The patches that represent the colors of natural objects have been matched to them as well as possible in spectral reflectance. Permanent pigments have been used so that the chart can be used repeatedly in direct sunlight without danger of fading or discoloring. The patches have uniform glossy surfaces so that unwanted surface reflections can be eliminated.

SOME MEASUREMENTS OF ARC LAMPS. Richard N. Norman. Graphic Arts Progress 4, No. 5, September-October 1957 (2 pages). The discrepancies of arc lamps are considered and graphically illustrated. It was found that the conditions of arc voltage and

current stability alone did not determine light output stability. No evidence was found to support the claim that lamps with motor-driven carbon feed are more stable than lamps with solenoid feed.

PLANOGRAPHIC PRINTING PROCESSES

*CLEANING OF ALUMINUM AND ALUMINUM ALLOYS. U. S. Patent 2,750,309. June 12, 1956. Alfred N. D. Pullen and Ernest D. Swann. Chemical Abstracts 50, No. 18, September 25, 1956, column 12802. Al and Al alloys are cleaned of oil and grease as well as fine particles of foreign metals in order to provide surfaces suitable for anodizing, electropolishing, or welding. The cleaning solution is made up of 1.8-3.5% by weight NaOH, 1-5% Na_2CO_3, dissolved Al approximately half the total weight of the Na compounds, 0.01-0.03% of the trans form of dinitrotetrammine cobaltic chloride, and 0.25% of a nonionic wetting agent such as a sulfonated glycol. The solution is used at 30-50° and the immersion time is 45 seconds to 2 minutes.

*IMPROVEMENTS IN PHOTOMECHANICAL PROCESSES AND MATERIALS THEREFOR. British Patent No. 763,288, by Kodak Ltd., of Kodak House, Kingsway, London, W.C.2. - Application date: June 16, 1954, published: Dec. 12, 1956. The British Journal of Photography 104, No. 5085, November 1, 1957, p. 630. As a light sensitive coating composition for the production of stencil or resist images, it is proposed to use a water soluble colloid which is capable of being insolubilised with exposure to light when sensitised with an aryl azide compound. The resist so formed is not very suitable for lithographic printing purposes since it is rather hydrophilic, therefore it does not accept greasy printing ink. In order to overcome this difficulty it is proposed to incorporate in the coating either a natural or a synthetic rubber latex to improve the hydrophobic properties of the resist. The examples of aryl azides useful in the invention are represented by the following general formula

$$N_3 - R - CH = CH - R_1$$

wherein R represents a monocyclic arylene group of the benzene series and R_1

represents an acyl group of a carboxylic acid or an azidoaryl group of the benzene series, provided that the said azide compound contains at least one substituent selected from the group consisting of a sulpho radicle, a carboxyl radicle, and alkali metal salts of said radicles. Typical coating compositions are exampled by a mixture of casein, disodium 4,4-diazidostilbene-2,2-disulphonate, together with a small quantity of ammonia and a dispersion of rubber latex.

*LIGHT-SENSITIVE MATERIAL FOR PHOTOMECHANICAL REPRODUCTION. British Patent No. 745,889, by Kalle & Co., A.G., of 25 Rheinstrasse Wiesbaden-Biebrich, Germany. Application date in Germany: July 1, 1953. Published: March 7, 1956. The British Journal of Photography 104, No. 5085, November 1, 1957, p. 630. This invention is concerned with light-sensitive materials for the production of lithographic printing plates. A light-sensitive layer comprises one or more stilbene compounds containing one or more substituents having the general formula

$-SO_2-NH.Ar$ or $-NH-SO_2.Ar$

in which Ar is an aromatic group. Such compounds are dissolved in a suitable solvent and coated on to an aluminium foil which may if desired be provided with an aluminium oxide layer produced chemically or electrochemically. The aromatic group attached to the substituent shown above may be further substituted for example with a methyl, methoxy, or halogen group. The stilbene compound may be further substituted with one or more halogen, nitro, alkoxy, acylamine, or styryl groups. The stilbene compounds may be used singly or in various mixtures, and the advantage of the latter procedure is the avoidance of layers in which individual compounds tend to crystallise out. After coating a layer of the stilbene compound on to a support, the material is exposed to light under a negative and then treated either with a dilute alkaline solution followed by an acid and then greasy lithographic ink, or alternatively the treatment consists of removing the unexposed portions in an aqueous alcohol solution and then following with the alkaline treatment. The image that remains on the metal surface can be effectively inked and used for lithographic printing and it is claimed that long runs are achieved with the material.

NU-CHROME BI-METAL PLATE. Tin-Printer & Box Maker, No. 393, October 1957, pp. 13 (1 page). The two metals, forming the image and non image areas, are bonded to a third supporting metal. The supporting metal is of mild steel, the second layer is the electro-deposited copper and chromium forms the protective top layer. When exposed and etched, the chromium is the non image area and copper is the recessed image area.

DARK REACTION IN CARBON TISSUE. H. Stiehler. Papier u. Druck, vol. 6, no. 8, August 1956, Druck u. Repro., pp. 120-3 (in German); Printing Abstracts, vol. 12, no. 4, April 1957, page 226. The dark reaction phenomenon and factors which affect it are discussed.

PAPER AND INK

THE OXIDATION AND DRYING PROPERTIES OF STYRENATED ALKYDS. E. A. Bevan, M. J. Heavers and W. R. Moon. Journal of the Oil and Colour Chemists' Association 40, No. 9, September 1957, pp. 745-760 (16 pages). This article is interesting because it contains the idea and one associated reference (from England) that the oxidation of oil and varnish causes fogging of photographic emulsions, the degree of fogging is proportional to the oxidizability of the oil or varnish.

NEW CONDITIONER ADDS MOISTURE TO VARIOUS WEBS. Lawrence Engel. Paper, Film and Foil Converter, Vol. 31, No. 9, September 1957, pp. 23-24, 2 pages. A general discussion of the importance of paper conditioning in printing with a description of the Avisco Web Conditioner manufactured by J. O. Ross Engineering Corporation. Definition of moisture content, percent regain, conditioning and maturing, and equilibrium moisture content are given. Static electricity in printing in relation to moisture of paper is discussed. The Avisco Web Conditioner injects low pressure steam onto a moving web into the voids of which condensation occurs. Excess steam is evacuated by an exhaust system. An automatic steam cut-off protects the web when stopped.

*INFLUENCE ON THE BEHAVIOR OF THE PAPER OF TENSION FORCES APPLIED DURING THE DRYING OF PAPER. Walter Brecht and Dieter Pothmann. Tech. Hochschule, Darmstadt, Germany. Das Papier 9, 304-11, 429-37, (1955). Chemical Abstracts 50, No. 2, January 25, 1956, columns 1308-09. By means of specially devised laboratory apparatus, the drying of test sheets with isotropic fiber distributions was studied. "Draws" of known magnitude were applied, and the changes in dry content, and more especially in the stretch and the shrinkage of the sheet during drying were investigated. The influence of these drying conditions on the strength properties and on the visco-elastic behavior of the paper was studied. Paper from the same stock showed that the highest stretch and, in general, the most favorable elastic behavior resulted when the sheet was allowed to shrink as freely as possible during drying. An increase of the tension resulted in higher breaking length in the direction to which the draw was applied but the stretch was lower, and the so-called "tensile softness" (dehnungsweichheit) was also lower. This is especially true when the draw acts upon the wet sheet and throughout the greater part of the drying process. When the draw acting on the wet sheet exceeded a certain value, damage to the strength properties of the entire sheet structure occurred. Results were in harmony with those of Rance (C.A. 49,2732e).

THE BRECHT AND WESP FIBER FORMATION TESTER FOR PAPER. Southern Pulp and Paper Manufacturer, Vol. 20, No. 10, October 1, 1957, pp. 68, 70, 2 pages. A fiber formation tester for paper was developed at the West Germany Institute of Papermaking to replace subjective judgment by the objectivity of a recording photo-electric cell. The instrument measures the cloudiness of paper - that is uniformity of fiber distribution in the sheet — by a numerical denotation. A circular sample is mounted on a rotating shaft and a slit of light passes through the paper. By varying the speed of rotation it is possible to determine the magnitude of the formation.

INK PROBLEMS? - Remedies and Cures. Oscar Diehl. The National Lithographer 64, No. 10, October 1957, p. 56. Six ink problems and cures for them are discussed briefly. The problems are: 1. Inks that back away from the fountain; 2. Ink piling on the plate or blanket; 3. Ink that powders or chalks off; 4. Burnt out color; 5. Dead looking colors; 6. Fading of the ink.

LITHOGRAPHY - GENERAL

FOUNTAIN DOPE - Eight factors enumerated as causes of set-off. John D. Payne. New England Printer and Lithographer, Vol. 20, No. 8, September, 1957, pp. 29-30. The term "set-off" is used to distinguish unintentional ink transfer from intentional "offset". Causes of set-off are listed: excess ink, slow ink setting, friction or pressure between sheets, slow drying, static, hooking and waffling, after-tack, spray. Pressmen are cautioned against over-inking to compensate for tinctorial weakness and other troubles. Slow ink drainage and drying increase the possibility of set-off. Set-off may occur in areas in which several inks are overprinted after drying of the first-down ink. Heat increases flow and drainage, reducing set-off danger. Discussion of last six topics to follow.

PHOTOLITHO NOTES. J. S. Mertle. National Lithographer 64, No. 2, February 1957, pp. 26, 28 (2 pages). Items reviewed: Copy preparation by new color coated plastic sheets; the Inter-Society Color Council's 40 chip color aptitude test; colored photos, oil and Flexichrome; Colorfilm protecting anti fungus overcoating Color Masking, with S. W. Buetz credited with the principle of masking, 1856; Daguerreotype and Tintypes; Repro Unit combining camera, retouch desk, whirler, and printing frame for $500; A gray sheet for flashing.

WHICH COLOR GOES FIRST? Theodore Makarius. Modern Lithography 25, No. 11, November 1957, pp. 72, 137, 139 (3 pages). A discussion of color sequence in relation to the total number of colors, transparency, trapping properties, coverage and tone value of the inks, color register and the number of units on the press.

PACKING AND PRESSURES. The National Lithographer 64, No. 9, September 1957, pp. 52, 54, 56 (3 pages). A discussion on offset press cylinder diameters and pressure relationships. The article includes suggested packing paper thicknesses and the application of a micrometer and a packing gauge.

LABORATORY WORK ON RELIEF (DRY) OFFSET. Anonymous. American Newspaper Publishers Association Research Bulletin, Press Room Edition No. 142, June 15, 1957, pp. 5, 6, 2 pages. This project was an investigation of a process for producing Sunday supplements in lieu of gravures and to appraise further uses. A Hoe Printmaster was employed, so the image transferred by way of a blanket cylinder. Excellent printing detail was obtained from a magnesium engraving. Smaller plates may be combined in a multiple plate made from stereo mats. The results depend upon a "kiss" impression which requires accurate plates in order to avoid smudging or poor inking. There is no press adjustment which can compensate for irregularities of squeeze due to plate defects. The results when printing on newsprint are stated to show good detail and clear halftones but to show less tonal range and contrast than letterpress.

GRAPHIC ARTS - GENERAL

LIGHTING FOR COLOR CONTROL IN THE GRAPHIC ARTS. Warren B. Reese. Pacific Printer Publisher and Lithographer, Vol. XCVI, No. 6, June 1957, pp. 11-14, 16-19, 8 pages. Theoretical and practical consideration working towards standard viewing conditions are thoroughly discussed. Progress of the American Standards Association pH 2.6 Subcommittee, the Joint Research and Engineering Council of the Graphic Arts and Illuminating Engineering Society Committee on Graphic Arts Color Appraisal, and The Packaging Institute Color Control Committee are reviewed. Two standards may first be issued because of continued conflict of opinion regarding North Sky daylights and a warmer compromise towards Tungsten light. Current thinking favors minimums of 50 foot candles at press tables and 75 foot candles for quality control. Nearby walls should be a neutral gray.

*ELECTROSTATIC PRINTING. British Patent 755,486 - Horizons, Inc. Photographic Abstracts - Part 2, 1957, p. 101. Two rollers rotating in opposite directions are (1) transparent cylinder carrying a thin conducting layer and an outer photoconductive layer, and (2) a metal roller having an insulating surface layer. The original is placed on the inside surface of the transparent cylinder and illuminated by light from a central lamp. A potential of about 300 volts is applied across the metal roller and conducting layer on the glass cylinder causing the formation of a charge on the insulating layer and photoconductive layer in the non-illuminated areas. Developing powder applied to the metal roller forms a visible image which can be transferred to a separate web. Halo effect around image areas is eliminated by the use of roller development in which the roller is coated with liquid developer comprising carbon particles in an organic liquid.

QUALITY IN THE REPRODUCTION OF MEDICAL ILLUSTRATIONS. Peter Hansell, MRCS, FIBP, FRPS. Process, Vol. 64, No. 762, June 1957, pp. 225-237, 13 pages. Comments of the problems in the reproduction of medical illustration by letterpress and offset.

CONDE NAST BUILDS PLYWOOD PRESS MOCKUP TO ELIMINATE PRESS INSTALLATION DISORDER. George M. Halpern. The Inland Printer 140, No. 2, November 1957, p. 67 (1 page). A mockup or profile of the operating side of the press, in full scale, 82 feet long and 20 feet high, was constructed from plywood. Controls and other parts of the five-color web press were cut out in plywood and superimposed on the basic panels. Ingenuity and plywood have successfully eliminated many of the usual headaches involved in designing and putting into operation a giant new printing press.

PAPER SPOILAGE ESTIMATES. Phillips N. Piper. The National Lithographer 64, No. 11, November 1957, pp. 18-21 (4 pages). A chart and descriptive information for determining paper spoilage. The spoilage table shown is divided into typical product groups and percent spoilage according to the amount of work to be done on a given quantity of sheets.

COLOR PRINTING FOR THE UNINITIATED. Marvin C. Rogers. Graphic Arts Monthly 29, No. 11, November 1957, pp. 18, 20, 22, 24, 26 (5 pages). Here is a fundamental explanation of letterpress, offset-lithography, gravure and silk screen processes, what each offers in color printing and some of the limitations to be found.

THE MEASUREMENT OF PRESSURE ON PRINTING PRESS. Prof. Dr. H. J. Albrecht. A 60 page booklet in German from the Instituts Mitteilung. A device is described which employs strain gauges to measure the pressure and gap between the flatbed form and the printing cylinder on a press.